

Conservation Education Resource Directory



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CONSERVATION EDUCATION RESOURCES DIRECTORY

Conservation Districts Division
Montana Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

January 1989

ACKNOWLEDGMENTS

This directory was compiled and authored by Joan Schumaker, education coordinator/natural resource specialist for the Conservation Districts Division of the Montana Department of Natural Resources and Conservation (DNRC), in cooperation with Bob Briggs, science specialist for the Montana Office of Public Instruction (OPI). Special thanks go to Carole Massman for editing; Don Howard, graphic design; and Susan Kirley, word processing. Production costs were paid by the Conservation Districts Division of DNRC, while distribution costs were provided by OPI.

INTRODUCTION

Montana's conservation districts are units of local government located in every county throughout the state. Their goal is to promote soil and water conservation, together with wise land use practices. This directory of conservation education materials has been compiled with the philosophy that, by instilling a conservation ethic in young people, we will help to improve future land and water resource management on both public and private lands.

The Conservation Education Resources Directory has been designed to meet the needs of Montana's teachers, youth group leaders, and others involved in natural resource education. We hope you find it useful. Please note that the inclusion of materials in this directory does not necessarily indicate endorsement.

The directory has been given a loose leaf design so that new materials can be easily added and out-of-date materials discarded. Feel free to photocopy the directory and share it with others. Our goal is to distribute the directory as widely as possible. Suggestions are welcome. If you are aware of additional conservation education materials, please send us the following information: title of program/resource material, address, telephone number, and a short description. We hope to send out annual updates.

We wish to thank all of the organizations and individuals that provided the information contained in this directory. We would also like to extend a hand of encouragement and support to all of you working with our young people for a better tomorrow. Bravo! Let us know how we can better serve you.

Joan Schumaker
Natural Resource Specialist
Department of Natural
Resources and Conservation

Bob Briggs
Science Advisor
Office of Public
Instruction

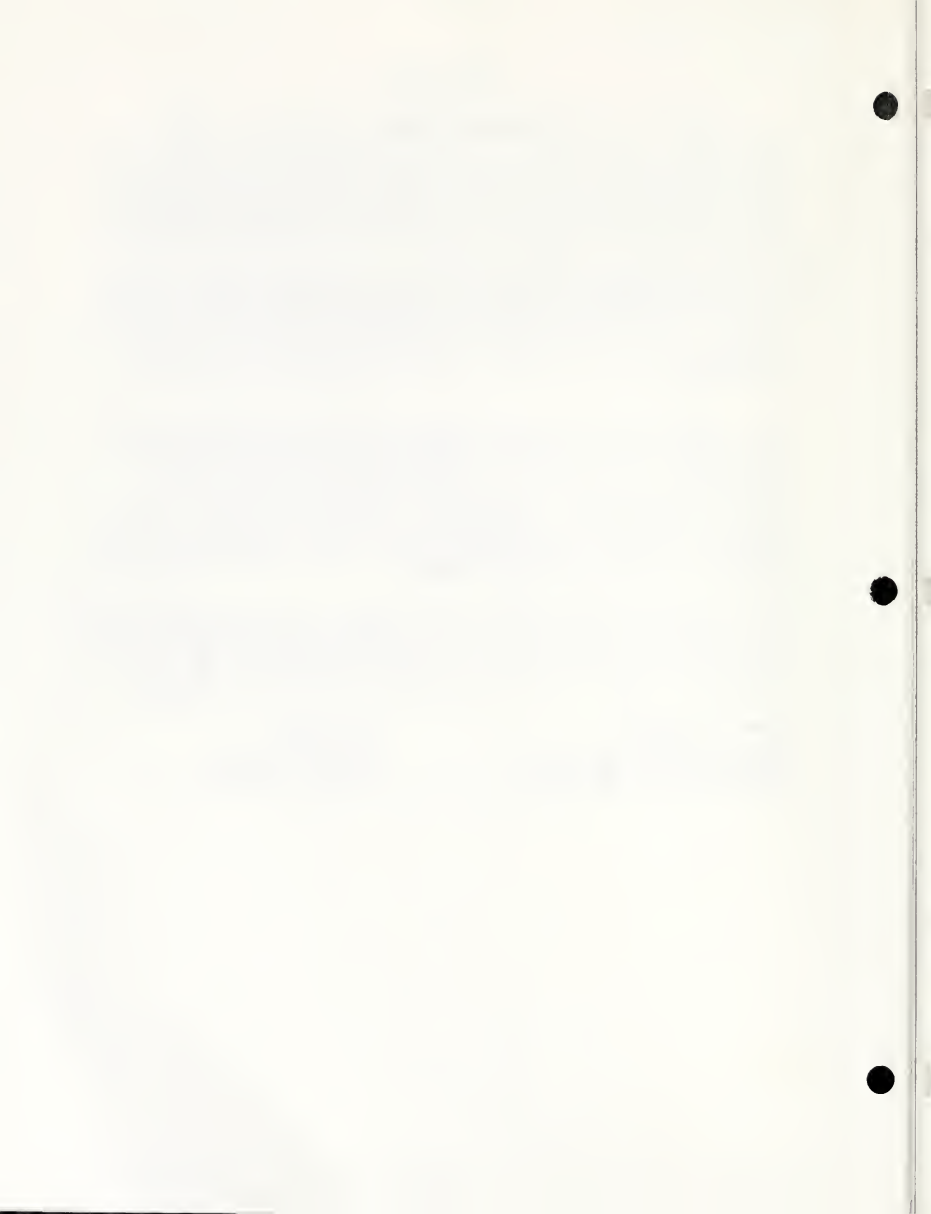


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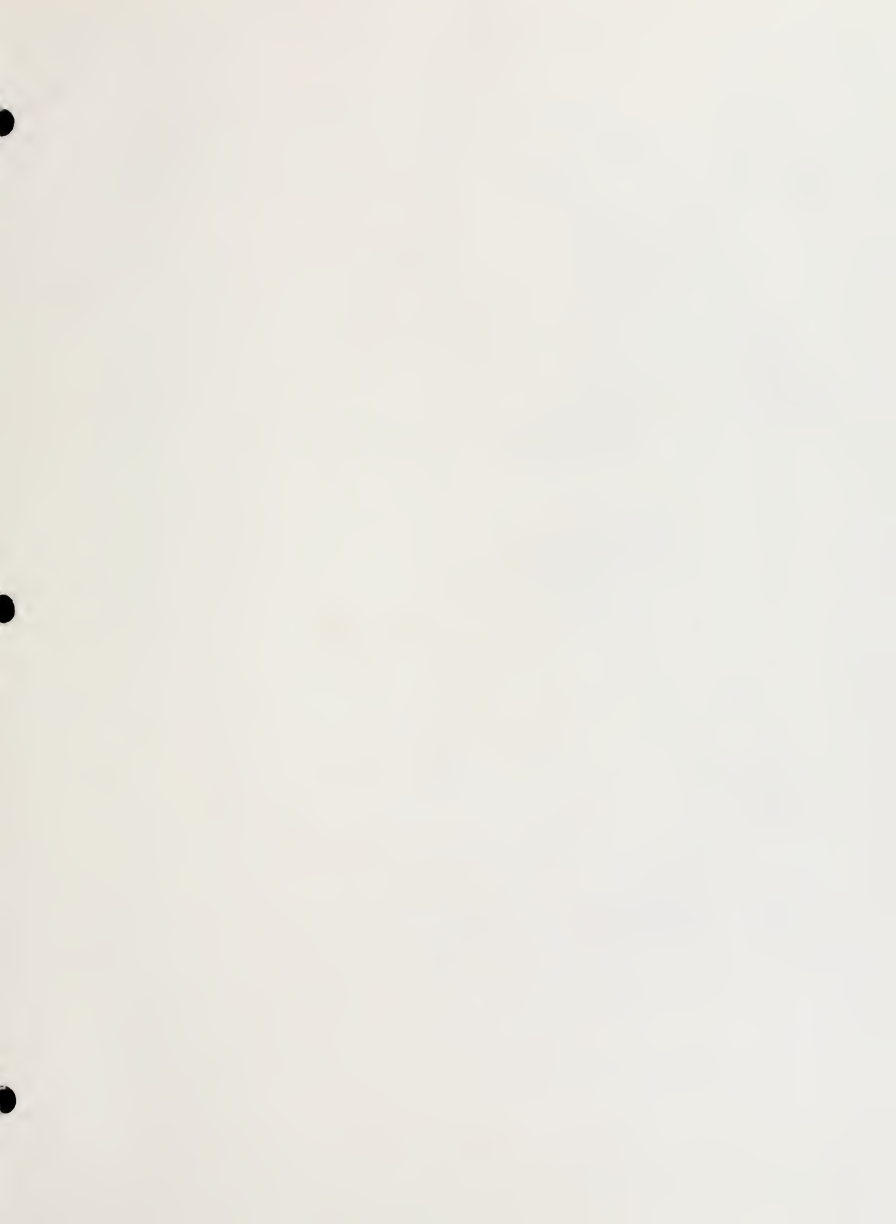
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TRAINING PROGRAMS FOR EDUCATORS

Many workshops and training programs are available for teachers. Most carry college-level credits; fees vary greatly. This section describes two dozen programs in Montana, Wyoming, and Idaho.

AGRICULTURAL CAREERS AWARENESS SUMMER WORKSHOP FOR EDUCATORS

This five-day workshop for high school teachers and counselors is jointly sponsored by the Montana State University (MSU) School of Agriculture and Agriculture in Montana Schools (AMS). The workshop consists of both classroom and hands-on activities, along with field trips. It is designed to show some of the many careers that are connected to agriculture, such as: food processing and distribution, futures market, food advertising, and world trade. All persons completing this workshop will be asked to conduct a presentation in their local school systems during the 1989-90 school year.

Date: June 12-16, 1989

Location: Montana State University, Bozeman, Montana

Credit: Two 500-level continuing education credits

Cost: \$200. AMS will provide a full scholarship to the first 35 people to register.

Contact: Betty Jo Malone
Agriculture in Montana Schools
Rural Route 2, Box 204
Choteau, Montana 59422

(406) 466-2597

AGRICULTURE AWARENESS SEMINAR: K-8 TEACHERS

This course is designed to provide the teacher with both the resources and ideas to develop student understanding and appreciation of the significant contribution agriculture makes to the state and its communities. The course makes use of the Treasure Chest materials compiled by Agriculture in Montana Schools and distributed to each county. These materials are designed to supplement present school curriculum and can be used in virtually any discipline.

Dates: A 1½ day seminar is held periodically throughout the year, upon request.

Location: Locations vary throughout Montana

Credit: One 500-level continuing education credit

Cost: \$40

Contact: Betty Jo Malone
Agriculture in Montana Schools
Rural Route 2, Box 204
Choteau, Montana 59422

(406) 466-2597

AUDUBON CAMP IN THE WEST

The National Audubon Society sponsors several natural history summer workshops at a guest ranch near Dubois, Wyoming. Courses offered include: Nature Photography (one week), Field Ecology (one and two weeks), and Wilderness Research Backpack (two weeks). The first week of the Field Ecology workshop is devoted to half-day sessions studying native plants, birds, aquatics, wildlife, geology, and more. The second week is full of even more variety, with participants choosing among six to ten mini-courses offered in a given day. These mini-courses include environmental education topics, solar energy projects, Native American studies, and field research data collection. The one-week Field Ecology workshop is limited to the mini-courses described above. The Wilderness Research Backpack introduces participants to research skills and topics in a wilderness setting.

Dates:	Nature Photography	June 16-25, 1989
	Field Ecology(1 week)	June 23-30, 1989
	Field Ecology(2 weeks)	July 2-14, July 16-28, and July 30-August 11, 1989
	Wilderness Research Backpack	July 2-14, July 16-28, and July 30-August 11, 1989

Location: Wind River Mountains near Dubois, Wyoming

Credit: One-two semester hours of undergraduate or graduate credit are available through the University of Wyoming.

Cost:	Nature Photography	\$750
	One-week Field Ecology	\$475
	Two-week Field Ecology	\$675
	Wilderness Research Backpack	\$550

Contact: Registrar--Audubon Camps
National Audubon Society
613 Riversville Road
Greenwich, Connecticut 06831

(203) 869-5272

BETTER ELEMENTARY SCIENCE TEACHING (BEST) PROJECT

The Montana Science Teachers Association, the Office of Public Instruction, and the Montana University System are offering Montana's BEST Project. The project is designed to improve the teaching of science education in our elementary schools. A three-part program has been developed and funded by a grant from the National Science Foundation. The first part is a regional summer institute for elementary school teachers for three summers. The 1987 institute was held at Eastern Montana College, and the 1988 institute was held at the University of Montana. In 1989, the site will be Montana State University. The other two parts are in-service workshops and long-term follow-up. University field support, follow-up conferences, and electronic telecommunication networking are also part of the project.

Date: June 11-July 7, 1989

Location: Montana State University, Bozeman, Montana

Credit: Eight graduate quarter credits from Montana State University, with an option for two more during the follow-up

Cost: FREE and then some. Participants will receive \$160 per week, a private dormitory room, all meals, travel expenses, supplies, materials, and a bookstore account.

Contact: Elisabeth Charron
Department of Education
Montana State University
Bozeman, Montana 59717

(406) 994-4731

BIG CREEK OUTDOOR EDUCATION CENTER TEACHER WORKSHOP

The Big Creek Center offers a one-day workshop for teachers who are interested in integrating their classroom science instruction with the center's outdoor lab facilities.

Topics will include the terrestrial environment, aquatic environment, and earth sciences.

Date: Fall 1989 (call for exact date)

Location: Big Creek Outdoor Education Center north of
Columbia Falls, Montana

Credit: One credit available from the University of Montana

Cost: \$15 workshop fee; \$40 for credit

Contact: Susie Bouton, Director
Big Creek Outdoor Education Center
6500 North Fork Road
Columbia Falls, Montana 59912

(406) 755-6078, extension 333

CANYON FERRY LIMNOLOGICAL INSTITUTE SUMMER FIELD COURSE

A ten-day residential summer field course is offered for elementary, middle school, and high school teachers at Canyon Ferry Reservoir, 30 miles east of Helena. Instruction focuses on field data collection, laboratory analysis, computer applications, and lesson plan development. Evening programs include guest speakers and presentations.

Date: June 19-30, 1989

Location: Canyon Ferry Reservoir at the U.S. Bureau of Reclamation multipurpose lab, classroom, dining hall, and dormitories

Credit: Four credits from Montana State University
(\$35 registration fee)

Cost: \$500 (includes tuition, housing, scientific equipment, and boat use). Inquire about scholarships.

Contact: Gil and Marilyn Alexander, Program Directors
Canyon Ferry Limnological Institute
504 Dearborn
Helena, Montana 59601

(406) 443-2745

COLORADO OUTWARD BOUND SCHOOL--MERIT GRANT PROGRAM FOR TEACHERS

The merit grant program gives junior and senior high school teachers the opportunity to take a 10- or 14-day course with free tuition. The program is competitive. Once the course is over, recipients are asked to submit a brief paper describing their experience and how they will incorporate it into the classroom. Courses teach backcountry travel and camping skills, safety and first aid, leadership, and group process skills.

Dates: May-September; applications for summer 1989 should be submitted by March 3, 1989; early submittal is highly recommended.

Location: Colorado, Utah

Credit: Independent study arranged by participant

Cost: Recipients receive free course tuition.

Contact: Colorado Outward Bound School
945 Pennsylvania Street
Denver, Colorado 80203

(303) 837-0880

CONSERVATION BIOLOGY AND ENDANGERED SPECIES OF THE NORTHERN ROCKIES

This four-day course for teachers will explore conservation biology concepts and apply them to the Northern Rockies' plants and animals. Grizzly bears, wolves, black-footed ferrets, bald eagles, whooping cranes, and the Greater Yellowstone Ecosystem will be studied. The course will include lectures, case studies, movies, computer exercises, and sample curricula. This workshop is sponsored by the Audubon Society, the Northern Rockies Conservation Cooperative, the U.S. Fish and Wildlife Service, and others. Teachers are encouraged to do a follow-up project with their students.

Date: August 7-11, 1989

Location: Grand Teton National Park, Training Facility, Moose, Wyoming

Credit: Two-three semester hours from the University of Wyoming

Cost: \$80 for course; \$35 per credit

Contact: Don Kesselheim
Director of Education
Wyoming Outdoor Council
Box 1449
Lander, Wyoming 82520

(307) 332-7031

DINOSAUR DIG: FIELD PALEONTOLOGY SHORT COURSES

These courses are designed for the lay person and provide a detailed tour of the scientific work underway at Egg Mountain, an introduction to the techniques involved in field paleontology and fossil identification, an overview of the unique geologic history of the Choteau area, and special evening programs on paleontology and geology. Participants will also learn more about the Museum of the Rockies in Bozeman and the Nature Conservancy's Pine Butte Swamp Preserve.

Dates: July 2-3, July 9-10, July 16-17, July 23-24, and July 30-31, 1989

Location: Egg Mountain near Choteau, Montana

Credit: None available

Cost: \$90-\$100 per adult, \$80-\$90 per child

Contact: David Swingle
Director of Museum Education
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

DINOSAUR DIG: PALEONTOLOGY SUMMER FIELD SCHOOL

Students (12 years old and up), teachers, and others participate in this six-day program as members of an operating paleontology research project. They will be instructed in the essentials of field and laboratory paleontology while excavating Malasurara fossils. Supplemental programs concerned with paleontology and museum practices will be offered. Participants live in Blackfeet tipis and share in camp duties. Tuition includes food, transportation from

Montana State University, and instruction. Brochures are available upon request.

Dates: July 2-8, July 9-15, July 16-22, July 23-29, and July 30-August 5, 1989

Location: Egg Mountain near Choteau, Montana

Credit: Independent study credit may be arranged.

Cost: \$850. Students under 16 years old should be accompanied by an adult.

Contact: David Swingle
Director of Museum Education
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

ENERGY CONSERVATION FOR CHILDREN: TEACHER TRAINING WORKSHOPS

The Montana Energy Education Council provides training workshops for teachers who would like to use the Conservation for Children curriculum materials. The curriculum materials include six guidebooks, one for each of the first six primary grades. The guidebooks offer exercises and basic skill practice in the areas of language arts, math, social studies, and science while focusing on energy conservation. The workshop is a prerequisite to receiving the curriculum materials.

Date: Upon request

Location: Varies

Credit: None

Cost: No Charge

Contact: Jenny Younger, Executive Director
Montana Energy Education Council
5555 Black Bear Road
Bozeman, Montana 59715

(406) 587-2300

FLATHEAD LAKE BIOLOGICAL STATION--SUMMER COURSES

The course offerings for 1989 are as follows:

- Aquatic Flowering Plants--Dr. Alfred E. Schuyler,
Academy of Natural Sciences, Philadelphia,
Pennsylvania
- Ecology of Mammals--Dr. Kerry Foresman, University
of Montana
- Lake Ecology--Dr. Craig Spencer, University of
Montana, and Dr. Alan Covich, University of
Oklahoma
- Aquatic Insects--Dr. Ken Stuart, North Texas State
University, and Dr. Vincent Resh, University of
California
- Mycology--Dr. Orson Miller, Virginia Polytechnic
Institute and State University
- Terrestrial Plant Ecology--Dr. Douglas Reynolds,
Eastern Kentucky University

The courses each carry eight quarter credits and are offered 2½ days (20 hours) per week. Students usually take two of the formal courses plus a one-credit seminar.

Dates: June 19-August 12, 1989

Location: Flathead Lake Biological Station near Polson,
Montana

Credit: Eight credits per course

Cost: \$432.50 for resident tuition (for 12-18 credits) and
\$700 for room and board

Contact: Dr. Jack Stanford
Flathead Lake Biological Station
University of Montana
311 Bio Station Lane
Polson, Montana 59860

(406) 980-3301

GLACIER INSTITUTE--NATURE IN YOUR CLASSROOM WORKSHOP

Teachers and others who work with youth have an opportunity to explore and learn about science and nature in Glacier National Park with its marvelous variety of habitats. Plants, animals, and the night sky will be observed and discussed. The class integrates science and art with a variety of hands-on projects and activities that can easily be adapted to kindergarten through grade eight. Various two- to

four-day summer natural history courses and one-day nature explorations are also available. Contact the Glacier Institute to request a brochure.

Date: June 17-18, 1989

Location: Glacier National Park

Credit: One credit from the University of Montana

Cost: \$85, plus \$40 for University of Montana credit

Contact: The Glacier Institute
P.O. Box 1457A
Kalispell, Montana 59903

(406) 752-5222 (Flathead Community College)
(406) 888-5215 June 15 to August 15 (summer office)

LEE METCALF NATIONAL WILDLIFE REFUGE--TEACHER WORKSHOPS

These workshops present a multidisciplinary approach to outdoor education for K-12 teachers. The emphasis is on hands-on activities that teachers can do with students outdoors or in the classroom.

Dates: May 6, 1989--spring workshop

Location: Lee Metcalf National Wildlife Refuge near Stevensville, Montana

Credit: One credit available from the University of Montana

Cost: \$10 registration fee and \$40 per credit

Contact: Beth Underwood
Lee Metcalf National Wildlife Refuge
P.O. Box 257
Stevensville, Montana 59870

(406) 777-5552

MASTER OF SCIENCE FOR TEACHERS IN THE BIOLOGICAL SCIENCES

The Master of Science for Teachers in the Biological Sciences (MST) program is designed to improve the proficiency of certified biology teachers in subject matter and teaching techniques. To earn the degree, students must complete 54 graduate credits, including a minimum of 35 credits in biology and 3 credits of research. The remaining 16 credits may be

taken in allied fields or as electives. The course of study is individually designed in consultation with the director of the MST program. Students must maintain a B average in all graduate courses taken at the university. No grade below a C will be accepted. All requirements for the degree, including a final oral exam, must be completed within six years. A suggested course of study would be to select two 8-credit courses and a 1-credit seminar for each of three summer sessions (for a 51-credit total). During the fourth summer, the student would complete the remaining 3 credits as a research project.

Date: June 19-August 12, 1989

Location: Flathead Lake Biological Station near Polson,
Montana

Credit: 54 graduate credits for total program

Cost: Per summer, \$432.50 for resident tuition
(18 credits) and \$700 for room and board

Contact: Dr. David Bilderback
Department of Botany
University of Montana
Missoula, Montana 59812

(406) 243-5222

MONTANA COAL ISSUES SUMMER WORKSHOP

This workshop is designed to increase teachers' knowledge about coal development in Montana so that they can communicate the coal issue to K-12 students. Participants spend five and one-half days touring the state and visiting with government officials, environmental organizations, mining companies, and others to learn about all aspects of coal development: mining, reclamation, social issues, and political and environmental concerns. Participants will be required to produce a teaching unit about coal and energy issues appropriate to their classroom needs. The workshop is limited to 20 participants on a first-come, first-served basis. This workshop has been offered annually since 1980.

Date: June 1989 (Please call for exact dates)

Location: A traveling workshop with stops in Butte, Bozeman,
Billings, Colstrip, and Helena

Credit: Two Credits from Montana State University

Cost: \$35 for two credits. Transportation, lodging, and food are provided by the Montana Energy Education Council.

Contact: Gary Swant, Workshop Instructor
113 North Frontage Road
Deer Lodge, Montana 59722

(406) 846-2451 home
(406) 846-2757 work (Powell County High School)

Montana Energy Education Council
5555 Black Bear Road
Bozeman, Montana 59715

(406) 587-2300

MONTANA ENERGY EDUCATION COUNCIL (MEEC) TEACHER TRAINING WORKSHOPS

MEEC is a non-profit organization that promotes energy literacy among students in grades K-12. Services available to teachers include workshops on the Conservation for Children curriculum, weed education curriculum, and science and energy activities.

Date: Upon request

Location: Upon request

Credit: Can be arranged

Cost: None

Contact: Jenny Younger, Executive Director
Montana Energy Education Council
5555 Black Bear Road
Bozeman, Montana 59715

(406) 587-2300

MUSEUM OF THE ROCKIES TEACHER TRAINING PROGRAMS

The Museum of the Rockies Education Department offers a variety of programs to assist and improve instruction in science, social studies, art, and regional literature. These may be scheduled for professional development days, in-service training, conventions, weekends, or as needed in some other context. Here is a partial list of programs for educators: questioning strategies for teachers, encouraging student

thinking and analytical skills, coordinating field trips for maximum effectiveness, writing scopes and sequences, student science project management, and effective grant writing for schools.

Date: Upon request

Location: Upon request

Credit: Can be arranged

Cost: Transportation and per diem incurred by Museum of the Rockies' instructor

Contact: David Swingle
Director of Museum Education
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

NATIONAL BISON RANGE TEACHER WORKSHOP PROGRAM

The content of the Teacher Workshop Program varies each year to keep the program dynamic and make it possible for participants to return. The most popular offerings are repeated, and these include: birds, mammals, wetlands, insects, geology, and orienteering.

Dates: Workshops are usually held the last Saturday in April and the third Saturday in October. Call for exact dates.

Location: National Bison Range, Moiese, Montana

Credit: One credit from the University of Montana

Cost: \$10 (to cover materials and supplies) plus \$40 per credit

Contact: Marcy Bishop
National Bison Range
Moiese, Montana 59824

(406) 644-2211

NATIONAL OUTDOOR LEADERSHIP SCHOOL (NOLS)--SUMMER OUTDOOR EDUCATORS' COURSE

In this 24-day course designed for the outdoor educator, participants receive training in essential backcountry living skills, safety, and judgment; first-aid and emergency procedures; geology, biology, and natural history; and how to conduct brief, interesting, and active classes for all age groups in the outdoors. Participants will also learn about the organizational aspects of outdoor programming, such as expedition planning, equipment selection, and student evaluation. At the conclusion of the course, participants will return to the NOLS headquarters for a behind-the-scenes look at how the school operates, including the processes for budgeting, wilderness management, permitting, program safety, and insurance.

Dates: June 8-June 30, June 22-July 14, July 24-August 15, and August 7-August 29, 1989 (Wyoming courses)

May 31-June 23, June 28-July 21, and August 16-September 8, 1989 (Washington courses)

Location: Wyoming--Wind River, Teton, or Bighorn ranges
Washington--North Cascades Range

Credit: Five hours of biology or recreation credit from the University of Utah

Cost: \$1,450 and \$100 for five credits

Contact: National Outdoor Leadership School
Admissions Department
Box AA
Lander, Wyoming 82520

(307) 332-6973

NATIONAL OUTDOOR LEADERSHIP SCHOOL--WINTER OUTDOOR EDUCATORS' COURSE

In this 18-day course designed for the winter outdoor educator, participants receive intensive skill development in three sections: avalanche certification, telemark and track ski skills, and a winter backpack expedition which focuses on winter camping, route-finding, and safe group leadership.

Dates: December 28, 1988-January 14, 1989
January 11-February 13, 1989
Call in September for 1990 winter course dates.

Location: Wyoming--Teton and Wind River ranges

Credit: Five hours of biology or recreation credit from the University of Utah

Cost: \$1,295 and \$100 for five credits

Contact: National Outdoor Leadership School
Admissions Department
Box AA
Lander, Wyoming 82520

(307) 332-6973

PROJECT WILD WORKSHOPS

Workshops of various lengths are offered to introduce teachers to the Project Wild Activity Guides for elementary and secondary grades. The Activity Guides focus on wildlife ecology and resource conservation. More importantly, students are encouraged to develop critical thinking and decision-making skills. Workshops are conducted by teacher facilitators trained by the Montana Department of Fish, Wildlife and Parks and the Office of Public Instruction. This innovative supplementary education program can be incorporated into many subject areas. Free Project Wild Activity Guides and an aquatic supplement are provided to each teacher taking the workshop.

Date: Upon request

Location: Workshops are conducted throughout Montana.

Credit: Can be arranged

Cost: None

Contact:

Vince Yannone
Youth Education Specialist
Department of Fish,
Wildlife and Parks
1420 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-3088

Bob Briggs
Environmental Education
Specialist
Office of Public Instruction
State Capitol
Helena, Montana 59620-2301

(406) 444-4439

SAWTOOTH NORTH ENVIRONMENTAL EDUCATION WORKSHOP

Montana educators and resource agency personnel are invited to attend this workshop conducted at Camp N-Sid-Sen, on Lake Coeur d'Alene, Idaho. The workshop will offer community and environmental field investigations, introductions to Project Wild and Learning Tree, neutral discussion skills, and other skill-building activities. Natural resource education strategies, energy education, and simulation games will also be taught. The Idaho Departments of Education and Water Resources, along with the College of Idaho, Idaho Society for Energy and Environmental Education, and the U.S. Forest Service sponsor this annual workshop for educators, resource agency personnel, and others who are interested.

Date: June 25-30, 1989

Location: Lake Coeur d'Alene, Idaho

Credit: One-two credits from the College of Idaho

Cost: \$100 for registration fee (covers lodging and meals); \$25 preregistration required by June 1; \$25 per credit

Contact: K. T. Meyer
Idaho Department of Water Resources
1301 North Orchard
Statehouse Mail
Boise, Idaho 83720

(208) 334-7978

(800) 334-SAVE

TETON SCIENCE SCHOOL PROGRAMS FOR TEACHERS

The Teton Science School in Jackson Hole, Wyoming, offers a teacher workshop, and several seminars and college-level courses that would be of interest to educators. They may be taken for college credit or to enhance one's professional development.

Adult Seminars--Non-residential

The Adult Seminars offer participants the opportunity to investigate a multitude of fascinating and enjoyable topics. These courses are designed for people of all interest levels. In addition to seminars on wildflowers, wildlife, fire ecology, rivers, weather, astronomy, and more, there are

several seminars that are particularly appropriate for teachers. These include: Patterns in Nature, which ties math and science principles together; and Scientist in the Kitchen, which explores the chemistry and physics of cooking.

Dates: Summer, 1989. Request a course catalog for exact dates.

Location: Teton Science School in Teton National Park, Wyoming

Credit: Varies with course

Cost: \$40.00 to \$200.00, depending upon course length. Limited financial aid available.

College Credit Courses--Residential

Three four-week courses will be offered for college credit during summer 1989. The courses will be: Fire Ecology, Ecology of Hoofed Mammals of the Greater Yellowstone Ecosystem, and Ecology of Hoofed Mammals of Jasper National Park, Alberta, Canada. A ten-day winter ecology course will be offered next winter.

Location: Varies with course

Dates:	Fire Ecology	June 12-July 7, 1989
	Ecology...Yellowstone	June 12-July 7, 1989
	Ecology...Jasper	August 1-28, 1989
	Winter Ecology	December 28-January 6, 1989

Credit: Varies with course

Cost: \$1350.00, fee includes meals, accommodations (field camp), instruction, and transportation during the course. Financial aid available.

Teacher Workshop

The primary aim of the workshop is to introduce teachers to the use of field science projects and environmental education. Some of the activities will have specific carry-over to the classroom, while others will be designed solely to challenge and stimulate participants. Course material is derived from curriculum units developed by the Teton Science School, as well as from Project Wild and other sources. Activities are tailored to the season of the workshop and the interests of the teachers who attend. Field projects can include animal behavior, plant adaptations, aquatic studies,

fire ecology, interpretive techniques, and establishing long-term study plots. Three- to five-day summer seminars on a variety of natural history topics are also offered for credit. Contact the school to receive a brochure.

Dates: October 19-October 21

Location: Teton Science School in Teton National Park, Wyoming

Credit: One-two credits are available through the University of Wyoming or the University of Idaho

Cost: \$140 for three-day workshop (scholarships may be available)

Contact: For more information on all courses

Beth Dilley, Registrar
Teton Science School
P.O. Box 68
Kelly, Wyoming 83011

(307) 733-4765

U.S. FOREST SERVICE ENVIRONMENTAL EDUCATION WORKSHOP

The workshop is designed for teachers, youth group leaders, resource managers, pastors, and others involved in conservation education. Participants will live in a camp setting and attend 4-hour field investigations in five program areas: forestry, soils, water, wildlife, and range. Discovery and questioning techniques are emphasized. Additional indoor units involve various ecological concepts and learning/teaching skills. No prior background in environmental education or the sciences is required. The primary goals will be to cultivate an awareness of the environment, to demonstrate techniques of presenting materials and concepts to youngsters and adults, and to identify teaching resources available to the participants. This workshop is sponsored by several state and federal resource agencies and organizations and is conducted in both Montana and North Dakota.

Dates: June 5-8, 1989, in Washburn, North Dakota
August 8-11, 1989, in Red Lodge, Montana

Location: Washburn Western 4-H Camp near Washburn, North Dakota

Timbercrest Girl Scout Camp near Red Lodge, Montana

Credit: Two graduate quarter credits (optional) from Eastern Montana College or North Dakota State University

Cost: Room, board, and insurance fees \$65
Two credits, Eastern Montana College \$40

Contact: Dr. Will Clark
Custer National Forest
Box 2556
Billings, Montana 59103

(406) 657-6361

YELLOWSTONE INSTITUTE--NATURAL HISTORY COURSES

More than four dozen different courses are offered on a variety of natural history topics including geology, ecology, astronomy, history, wildflowers, wildlife, birds, photography, horsepacking, and backcountry travel. Request a free 1989 Yellowstone Institute catalog of field courses for more information and specific course dates.

Dates: Courses are one to five days in length, between May 31 and August 29

Location: Yellowstone National Park

Credit: Many teachers have enrolled in institute courses for recertification or professional growth credits. Institute personnel will assist teachers desiring credit.

Cost: Approximately \$30 per day. Partial and full scholarships are available to currently certified teachers for any course offering. Contact the Yellowstone Institute for more information. Scholarship applications are due 30 days prior to the beginning of the desired class.

Contact: Jill Edlund, Registrar
Yellowstone Institute
P.O. Box 117
Yellowstone National Park, Wyoming 82190

(307) 344-7381, extension 2384



EXTRACURRICULAR YOUTH PROGRAMS

Fourteen extracurricular youth programs are described in this section. All of the programs emphasize outdoor activities. Some are conducted year-round, and others take place during summers only. A few provide high school credit.

AGRICULTURE IN MONTANA SCHOOLS SUMMER STUDENT WORKSHOP

Seventh through twelfth grade students will attend a five-day workshop at Montana State University in Bozeman to learn about 21st Century agricultural careers. Through classroom and field activities, students explore the futures market, visit the Bozeman Livestock Sales, tour the Plant Growth Center and Potato Improvement Laboratory, and much more. Students are selected through the Agriculture in Montana Schools essay contest. Students must write 200-500 words on "_____ was the most important agricultural factor in Montana during its first 100 years of statehood," discussing the contribution of only one commodity, person, or influence.

Date: June 20-24, 1989

Location: Montana State University, Bozeman, Montana

Cost: No cost; open only to essay winners

Contact: Betty Jo Malone
Agriculture in Montana Schools
Rural Route 2, Box 204
Choteau, Montana 59422

(406) 466-2597

BIG SKY GIRL SCOUT COUNCIL CONSERVATION EDUCATION PROGRAMS

Conservation education is a part of the overall programming for scouts. Scouts may work on a number of conservation education-related badges at the Brownie, Junior, and Senior Girl Scout level. Badge topics include plants and animals, wildlife, ecology, eco-action, water wonders, geology, energy awareness, backpacking, and camping.

Date: Ongoing

Location: Statewide. Contact the council office for information on the troop nearest you.

Cost: \$4 annual registration fee

Contact:

Big Sky Girl Scout Council
Ninth Avenue South
P.O. Box 7128
Great Falls, Montana 59406

Treasure Trails Girl Scout 4930
Council
1015 Broadwater
Billings, Montana 59102

(406) 453-2477

(406) 259-2158

BOY SCOUTS OF AMERICA CONSERVATION EDUCATION PROGRAMS

A variety of conservation education-related activities are available for youth ages 6-18 years. Specific instruction covers the following topics: environmental science, fish and wildlife management, soil and water conservation, pulp and paper production, forestry, fishing, and plant science.

Date: Ongoing

Location: Statewide. Contact the Montana Council office for information on the troop nearest you.

Cost: \$7 per year

Contact: James King
Montana Council
Boy Scouts of America
P.O. Box 3226
Great Falls, Montana 59403

(406) 761-6000

CAMPFIRE, INC., FOR BOYS AND GIRLS

Campfire is a co-ed program for boys and girls in grades K-12. It is divided into five program levels--Sparks for kindergartners, Blue Birds for first through third grades, Adventure for fourth through sixth grades, Discovery for seventh and eighth grades, and Horizon for high school ages. There are seven councils in Montana--Helena, Great Falls, Missoula, Butte, Bozeman, Billings, and Glendive. Each council has an office where someone may be contacted about the individual activities in that particular council.

Programs available are club, camping, and response; some councils also offer an after-school care program. Club programs consist of weekly or biweekly meetings where children meet to have fun and work on special projects of both national and local concern. Camping programs consist of a summer resident camp, day camp, or both. At camp children learn

about nature and living outdoors. Some councils also offer a camp counselor-in-training program for high school youth which is an intensive 220-hour training taking place both at summer camp and throughout the year. Response programs are self-help or self-reliance programs like--"I'm Peer Proof," "Caution Without Fear," child care classes, "I Can Do It," peace education, bicycle safety, and "I'm Safe and Sure." Campfire programs are open to all children; children may join at any time.

Date: Ongoing

Location: Statewide. Contact the Helena office (below) for information on the Campfire program nearest you.

Cost: Costs vary with the type of program. Scholarships are available.

Contact: Campfire, Inc.
2201-A East Chestnut Street
Helena, Montana 59601

(406) 442-1880

CANYON FERRY LIMNOLOGICAL INSTITUTE SUMMER YOUTH COURSE

Two weeks of challenging science awaits high school students (grades 10 to 12) interested in learning about aquatic ecology. Students' days are filled with collecting samples on Canyon Ferry Reservoir from a 16-foot sonar-equipped Lund boat, conducting laboratory analyses, learning computer applications, developing a research project, and listening to presentations on a wide variety of topics. Students' classes and living quarters are at the U.S. Bureau of Reclamation's multipurpose lab, classroom, dining hall, and dormitories adjacent to the reservoir. University of Montana college credit is available to returning students who write a research paper on their independent project.

Date: July 3-14 and July 17-28, 1989

Location: Canyon Ferry Reservoir, 30 miles east of Helena.

Cost: \$500 (includes tuition, meals, housing, scientific equipment, and boat use). Scholarships are available.

Contact: Gil and Marilyn Alexander, Program Directors
Canyon Ferry Limnological Institute
504 Dearborn
Helena, Montana 59601

(406) 443-2745 evenings

COLORADO OUTWARD BOUND SCHOOL (COBS)

Outward Bound offers junior mountaineering and whitewater rafting courses for ages 14 and 15. Both courses emphasize skills training, environmental awareness, and personal development. The alpine mountaineering courses feature rock climbing, peak ascents, first aid, route-finding, and campcraft. Whitewater rafting courses include both rafting and rock-climbing skills. Mountaineering, rafting, and canyon courses are also offered for ages 16 and up. COBS can also provide information on canoeing, sailing, and sea kayaking courses offered by other Outward Bound branch schools.

Dates: Ten- to thirty-day courses are scheduled from May to September.

Location: Colorado, Utah

Cost:	Junior courses:	14-day rafting	\$1,100
		17-day mountaineering	\$1,250
16 and up courses:	10-day canyon		\$ 900
	23-day canyon		\$1,325
	14-day rafting		\$1,000
	21-day rafting		\$1,625
	23-day mountaineering		\$1,325
	30-day mountaineering		\$1,725

Contact: Colorado Outward Bound School
945 Pennsylvania Street
Denver, Colorado 80203

(303) 837-0880

GLACIER INSTITUTE SUMMER YOUTH COURSES

Exploration classes for ages 10-15 years and academic courses for ages 16 years and up are offered between mid-June and mid-August at Glacier National Park. Classes are one to five days in length; topics include primarily natural history, but also art, photography, and history. Contact the Glacier Institute to obtain a 1989 brochure.

Dates: Classes are offered between mid-June and mid-August;
see brochure for exact dates.

Location: Glacier National Park

Cost: Cost varies with the length of the course.

Contact: Glacier Institute
P.O. Box 1457A
Kalispell, Montana 59903

(406) 752-5222 (Flathead Community College)

(406) 888-5215 (summer office, June 15 to August 15)

MONTANA NATURAL RESOURCES YOUTH CAMP

Youth ages 14-17 spend six days in a rustic setting learning about Montana's natural resources. Students receive one-half day of instruction in six program areas: forestry, water, soil, range, wildlife, and outdoor survival. In addition, they may choose several Learning-Through-Discovery workshops on many interesting topics. Instructors are experts in their fields with many years of professional and teaching experience. The purpose of the camp is to provide Montana youth with the knowledge and skills necessary to make difficult decisions regarding the future management, conservation, wise use, and protection of Montana's natural resources. The camp receives broad support and sponsorship from a wide variety of public and private agencies and organizations.

Date: First full week in August

Location: Lubrecht Experimental Forest, 35 miles northeast of Missoula, Montana

Cost: \$125 includes everything; most students receive sponsorship.

Contact: Mike Cavey
Taylor Hall
Montana State University
Bozeman, Montana 59717

(406) 994-3501

MONTANA RANGE DAYS

Various range-related programs and activities are offered each year as part of Montana Range Days, jointly sponsored by a county range committee, the Northern Agricultural Network, the Montana Department of Natural Resources and Conservation, and various statewide organizations. The three-day program provides instruction and competition for ages 9 years to adult, making it a popular family activity. Topics include plant identification, plant growth and anatomy, geology, soils, range condition and stocking rates, and a variety of electives such as wildlife management, noxious weeds, and archaeology. Range Days have been an annual event since 1976.

Date: Third week of June

Location: Various locations around Montana (changes biannually)

Cost: \$15 per person

Contact: Sam Short
Soil Conservation Service
1807 Third Street Northwest
Great Falls, Montana 59404-1990

(406) 453-9641

MONTANA YOUTH RANGE CAMP

The Youth Range Camp is a five-day camp for young people 14 to 18 that focuses primarily on range management. Instruction is presented on plant identification, plant anatomy, geology, soils, range condition, grazing systems and methods, wildlife management, and a variety of optional topics such as stream ecology, weed control, and timber management. The camp is jointly sponsored by the Montana Department of Natural Resources and Conservation and a county range committee; the camp was started in 1972.

Date: Second full week of June each year

Location: Various locations around Montana (changes annually)

Cost: \$35

Contact: Conservation Districts Division
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6667

MUSEUM OF THE ROCKIES NATURAL HISTORY SUMMER FIELD COURSES FOR KIDS

Two-, three-, and five-day courses are offered for three age groups of students. Depending upon the age level, students will be introduced to the sciences of geology, paleontology, archaeology, botany, biology, and astronomy. Classes will travel to nearby field study locations in each of these disciplines and work with professionals who are conducting research. Presentation and content will emphasize both scientific methodology and general overviews of each discipline, plus career opportunities. This program began in 1982.

Date: August 1989 (call for exact dates)

Location: Museum of the Rockies, Bozeman, Montana (with field trips to surrounding areas)

Cost: \$25 per person per day of attendance

Contact: Dave Swingle, Director of Museum Education
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

NATIONAL OUTDOOR LEADERSHIP SCHOOL (NOLS) COURSES FOR YOUTH

NOLS offers an adventure course for youths ages 14 and 15 and wilderness and natural history courses for those ages 16 years and up. Each course lasts 31 days, takes place in rugged wilderness terrain, and teaches students minimum impact camping skills, map reading, route finding, natural history, and observation skills, while engaging students in backpacking, cooking, climbing, and personal challenge. This is outdoor living at its best!

Seven hours of college credit are available for the wilderness or natural history course.

Dates: Between June and August; request 1989 Catalog of Courses.

Location: Wyoming or Montana; see catalog for courses in Washington, Alaska, Baha, or Kenya.

Cost: \$1,795; some loans and scholarships may be available.

Contact: National Outdoor Leadership School
Admissions Office
Box AA
Lander, Wyoming 82520

(307) 332-6973

TETON SCIENCE SCHOOL NATURAL SCIENCE SUMMER PROGRAMS FOR YOUTH

The Teton Science School in Jackson Hole, Wyoming, offers a specific summer program for each of four age groups.

Teton Junior Science Summer Day Program

Children can be enrolled for one day to nine weeks. Each week has a different theme: birds and mammals, plants, geology, rivers and lakes, reptiles and insects, and more.

Ages: 8-11

Dates: June 19-August 18, 1989. (Weekdays only; 8:30 A.M.-3:30 P.M.)

Cost: \$20 per day, non-residential (Reduced rates if preregistered for multiple days)

Junior High Field Ecology Residential Program

Thirteen days will be spent exploring the natural history of Jackson Hole, including a four-day backpacking trip.

Ages: 12-14

Dates: June 25-July 6, 1989

Cost: \$535 includes meals, housing, instruction, equipment, and transportation

High School Field Natural History Residential Program

This is a six-week course providing hands-on experience in field biology, emphasizing the unique ecology of Jackson Hole and Grand Teton National Park. The course includes live trapping, radio-tracking bears and eagles, and fire ecology, and two backpacking trips. One year of elective high school science credit may be earned.

Ages: 14-16

Dates: July 11-August 22, 1989

Cost: \$1,365 includes meals, housing, instruction, equipment, and transportation. Financial aid is available.

High School Field Ecology Residential Program

This is an advanced field studies program on the Greater Yellowstone Ecosystem. One year of high school biology is required; one year of elective science credit may be earned. The program provides a thorough introduction to the field sciences: geology, soils, botany, zoology, meteorology, and terrestrial and aquatic ecology. Lectures, discussions, field projects, student reports, journals, readings, and invited speakers are used. Approximately one-half of the course will be spent camping in the backcountry. Scientific investigation techniques and critical thinking are emphasized in work with leading researchers and scientists; potential career paths are discussed.

Ages: 16-18

Dates: July 11-August 22, 1989

Cost: \$1,365 includes meals, housing, instruction, equipment, and transportation. Financial aid is available.

Contact: For more information on all courses

Beth Dilley, Registrar
Teton Science School
P.O. Box 68
Kelly, Wyoming 83011

(307) 733-4765

YELLOWSTONE INSTITUTE SUMMER COURSES FOR YOUTH

Several classes are offered for youth ages 8 to 12 that cover a variety of natural history topics. Younger children can enroll in classes for family groups, while teenagers may attend adult-level courses. A detailed description of courses, their locations, and dates may be obtained from the Yellowstone Institute.

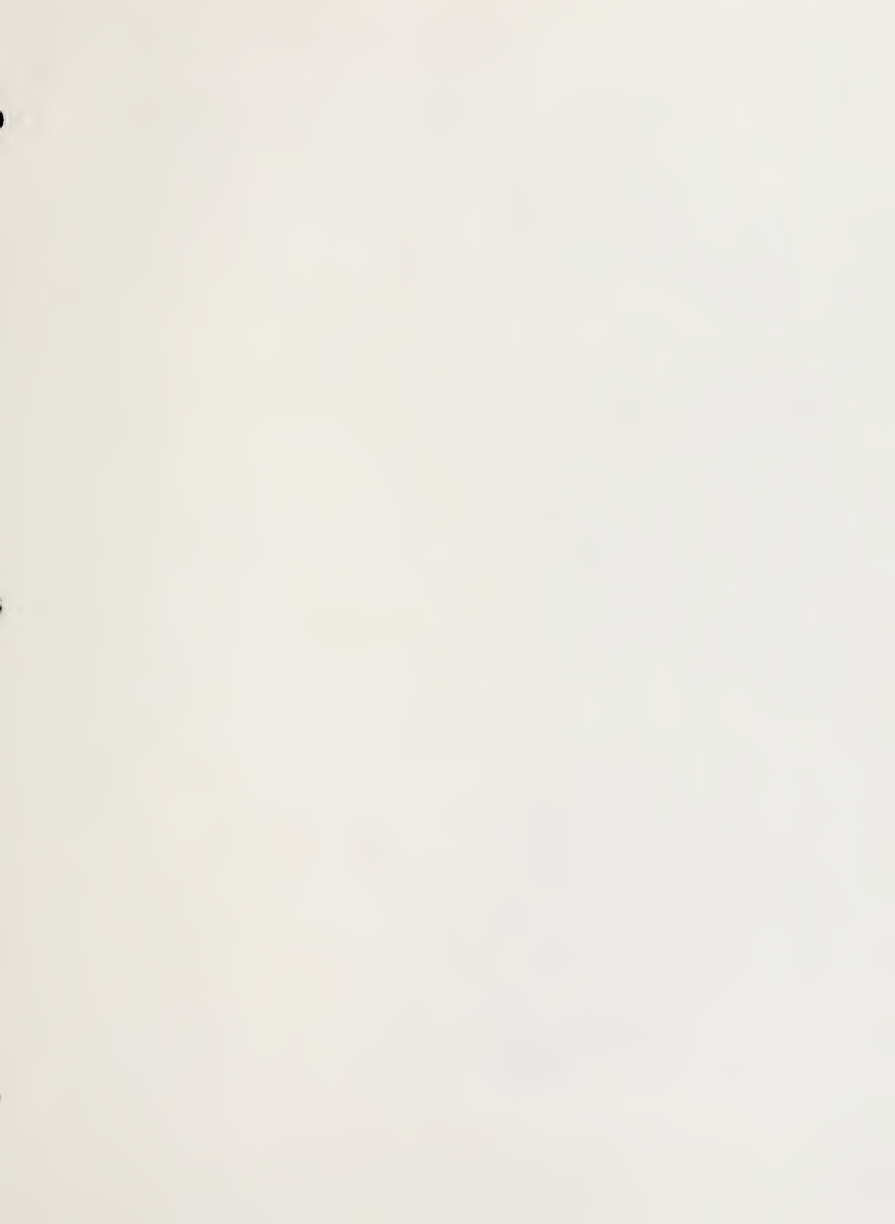
Dates: June-August

Location: Yellowstone Park and adjacent areas

Cost: Approximately \$30 per day

Contact: Jill Edlund, Registrar
Yellowstone Institute
P.O. Box 117
Yellowstone National Park, Wyoming 82190

(307) 344-7381, extension 2384





EXAMPLES OF CONSERVATION EDUCATION SCHOOL YEAR PROGRAMS

This section describes eleven programs conducted during the regular school year. Natural resource conservation and outdoor learning are emphasized in each program. These programs have been selected because they represent a cross-section of the types of programs that have been developed by individual teachers, school districts, conservation districts, and community groups. This list is not meant to be inclusive, but rather to provide ideas and contacts for those interested in developing their own program.

BAKER HIGH SCHOOL'S GREEN JEANS HORTICULTURE PROGRAM

The Green Jeans Horticulture Program is the only secondary horticulture program in Montana. A 12 x 40-foot greenhouse, nursery, shelterbelt, and landscaping sites comprise the horticultural laboratories for this unique science class. Topics include plant propagation, soils, fertilizers, pesticides, pruning, floral arranging, and landscaping, and garden tool use, maintenance, and repair. The horticulture program focuses on the vocational and recreational aspects of the biological sciences, in contrast to more academic programs for college-bound students.

The program was initiated in 1975 as an outdoor classroom project. A greenhouse was constructed and expanded with ESEA Title IV grants in 1977 and 1979. Computer equipment, including a color graphics system, was also added. With the aid of grants from the Title IV YCCIP program during 1980-82, students could be paid to work in the program. A 1982-83 Incentive Nutrition Education Grant further expanded the program to instruct students in the nutritional value of food and its relationship to human health and mental and physical well-being.

Contact: Richard A. Menger, Biology Department
Baker High School
Box 659
Baker, Montana 59313

(406) 778-3329

BRIDGER ENVIRONMENTAL EDUCATION PROGRAM (BEEP)

BEEP is an environmental awareness program for sixth grade students in Gallatin County, introducing students to a wide range of subjects related to the environment. Classes include soils, birds, aquatics, forest succession, backcountry skills, orienteering, mammals, tracks, first aid, photography,

pioneer history, gold panning, outdoor math, and creative writing. Each class has been developed to help students become more aware of our environment and the responsibility people have to make wise use of our natural resources.

The Fish Cultural Development Center and adjacent Forest Service lands in Gallatin County are the site for the program. Each September, sixth grade students from Belgrade Middle School and other Gallatin Valley schools are bussed to and from the site, where they spend three days attending five one-hour classes each day. They complete the day by watching award-winning outdoor films provided by the Montana Department of Fish, Wildlife and Parks. The BEEP program was established in 1980.

Contact: Richard A. Brastrup
Belgrade Middle School
Box 166
Belgrade, Montana 59714

(406) 388-1309

DAWSON COUNTY KIDS' CONSERVATION DAY

The Dawson County Range Resource Committee sponsors an annual Kids' Conservation Day each May. Approximately 160 students and teachers learn about a variety of natural resource topics, such as Indian artifacts, soils, irrigation systems, noxious weeds, range grasses, insects of Dawson County, sheep and wool production, and fish populations in the Yellowstone River. Instruction is provided by the Department of Fish, Wildlife and Parks, Soil Conservation Service, Bureau of Land Management, Montana Extension Service, and local range committee members. Lunch is sponsored by local businesses.

This program has been operating for three years.

Contact: Kenny Nemitz
102 Fir Street FP
Glendive, Montana 59330

(406) 365-5565

GALLATIN COUNTY'S WILLOW CREEK CLASSIC

The Gallatin County Conservation of Natural Resources Committee hosts this two-day activity each June. Young adults from 4-H, Future Farmers of America (FFA), Scouts, and the public participate. Classes are offered on a variety of topics including forestry, outdoor survival, Project Wild, wildlife, rocks and minerals, and livestock, range, and soils judging. Participants spend the night on a local ranch. Meals are provided by local agricultural organizations. This program began in 1984. Interest currently exceeds capacity.

Contact: Walt Steingruber
Gallatin County Conservation of
Natural Resources Committee
601 Nikles, Box B
Bozeman, Montana 59715

(406) 587-6929

GREAT FALLS PUBLIC SCHOOLS' ENVIRONMENTAL SCIENCES PROGRAM

The Great Falls Environmental Sciences Program uses the outdoors as a classroom to help students develop a greater awareness, understanding, and respect for the natural environment. Students learn through first-hand experiences, complemented with textbooks and audiovisual material. The program is available to the over 12,000 students in grades K-12 served by the Great Falls Public Schools. Actual field experiences begin in grade three and are available through grade twelve. Each grade has a specific focus:

- Grade 1 Plant and animal adaptations and characteristics
- Grade 2 Fossils
- Grade 3 Waste recycling, waterfowl migration, and pond study
- Grade 4 Geology and water conservation, management, and treatment
- Grade 5 Use of plant keys, noxious weeds, and water pollution's effects on fisheries
- Grade 6 Prairie and forest ecology, water chemistry, orienteering, and energy development and efficiency
- Grade 7 Wildlife refuge management and the role of public agencies in land management

- Grade 8 Specialized presentations and field trips related to physical science, e.g., air pollution
- Grade 9 Specialized presentations and field trips related to earth science
- Grades 10-12 Geology, ecology, and field trips to nearby national parks

The Great Falls program has been supported by the local Board of Education and local mill levies since 1970. The program budget includes two full-time environmental education teachers, a \$30,000 bus budget (1985-86), teaching materials, in-service training for classroom teachers, and a part-time program coordinator. Materials, field trips, and teaching expertise are provided, upon request, to nearby rural schools and community groups.

The Environmental Sciences Program is reviewed and revised every five years, in conjunction with the district's science curriculum. The activities and issues for each grade are carefully designed so as to be consistent with the developmental maturity of the learner. Balanced presentations are provided when discussing controversial resource issues. Various sites throughout the Great Falls area are utilized for field experience.

Contact: Janet Thomson, Program Coordinator
Great Falls Public Schools 1 and A
Box 2428
Great Falls, Montana 59403

(406) 791-2377

MONFORTON OUTDOOR SCHOOL--STYLE YELLOWSTONE (MOSSY)

MOSSY is a comprehensive school and outdoor field program for the life science students at Monforton School. The program begins in the spring of the student's sixth grade year, with a three-day field component occurring in the fall of the student's seventh grade year. The field site is Yellowstone National Park, where students study geothermal features, animals, plants, aquatic life, and relationships of living organisms. Instruction is provided by the life science teacher and volunteers; students are chaperoned by parents. The students sleep in tents, and meals are prepared by the chaperones.

The completion of a written research report is mandatory for participation in the outdoor portion of the program. While in the park, field study notebooks are used to gather

and analyze data, to take notes and observations, and to keep a journal. Follow-up activities after the trip are also conducted. Lesson plans, trip coordination ideas, field study notebooks, and other information are available from the program coordinator. The MOSSY program was initiated in 1986.

Contact: John Graves
6001 Monforton School Road
Bozeman, Montana 59715

(406) 586-1557

MONFORTON SCHOOL GEOLOGY FIELD PROGRAM

The geology program is for the eighth grade science students at Monforton School and is conducted during the spring each year. The students study geology during the fourth quarter prior to their field trip to the northern region of Yellowstone National Park, where they learn about the geothermal features of Mammoth Hot Springs, hike to the petrified trees on Specimen Ridge, and climb to the summit of Bunsen Peak, an old volcano cone. Field study notebooks designed for this trip are used to gather data on observations, animals, geological features, and journal entries. While in the park, students stay in tents, with chaperones providing assistance with meal preparation. Student participation in the field trip part of the program is contingent upon the completion of a research project. The geology program was started in 1984.

Contact: John Graves
6001 Monforton School Road
Bozeman, Montana 59715

(406) 586-1557

SUPERIOR SCHOOL DISTRICT'S ONE-WEEK OUTDOOR SCHOOL FOR SIXTH GRADERS

A one-week outdoor school for sixth graders is held each May at Savanac Nursery, 40 miles west of Superior. Approximately thirty students attend the program, which includes classes on tree/plant keys, stream/pond studies, wildlife, forestry, soils, backpacking, Indian folklore, and survival skills. Instructors include teachers, Forest Service personnel, the local timber industry, the Craighead Institute, and others. The students are accompanied to camp by four teachers, four high school student counselors, and two cooks. The program was started in 1965.

Contact: Clark Conrow
Superior School District #3
Box 400
Superior, Montana 59872

(406) 822-4962/4851

SWAN VALLEY ELEMENTARY SCHOOL CONSERVATION EDUCATION PROGRAM

The Conservation Education Program is incorporated into the regular science program and has three main components: (1) adopt-a-trail field day for grades 5-8, (2) design and construction of a nature trail from the school to the Swan River for outdoor activities and instruction, and (3) a three-day camping trip to Rainy Lake for fifth and sixth graders to study natural resources. The program began in 1986.

Contact: Dan White
School District #33
Star Route, Box 2487
Condon, Montana 59826

(406) 754-2320

WIBAUX ELEMENTARY SCHOOL ENVIRONMENTAL EDUCATION PROGRAM

The Wibaux Environmental Education Program promotes environmental awareness and appreciation by providing a full day of outdoor workshops to students in fifth through eighth grades. Each year the program takes place at a different site so that students learn about different ecosystems, soils, geology, etc., in the county. Small groups of students cycle through ten workshop stations on a variety of natural resource topics. Workshops are taught by various community resource people including the Soil Conservation Service, County Extension, and Department of Fish, Wildlife and Parks, as well as students in the high school environmental science class, teachers, and others. Each workshop lasts 25 minutes. Topics include range, food chains, wildlife, agriculture, soils, trapping, plants, geology, pioneer history, and Indian culture. The program was initiated in 1983 and receives tremendous support from the local community and the Parent-Teacher Association.

Contact: Melinda Berkram
Wibaux Elementary School
400 West Nolan
Wibaux, Montana 59353

(406) 795-2518

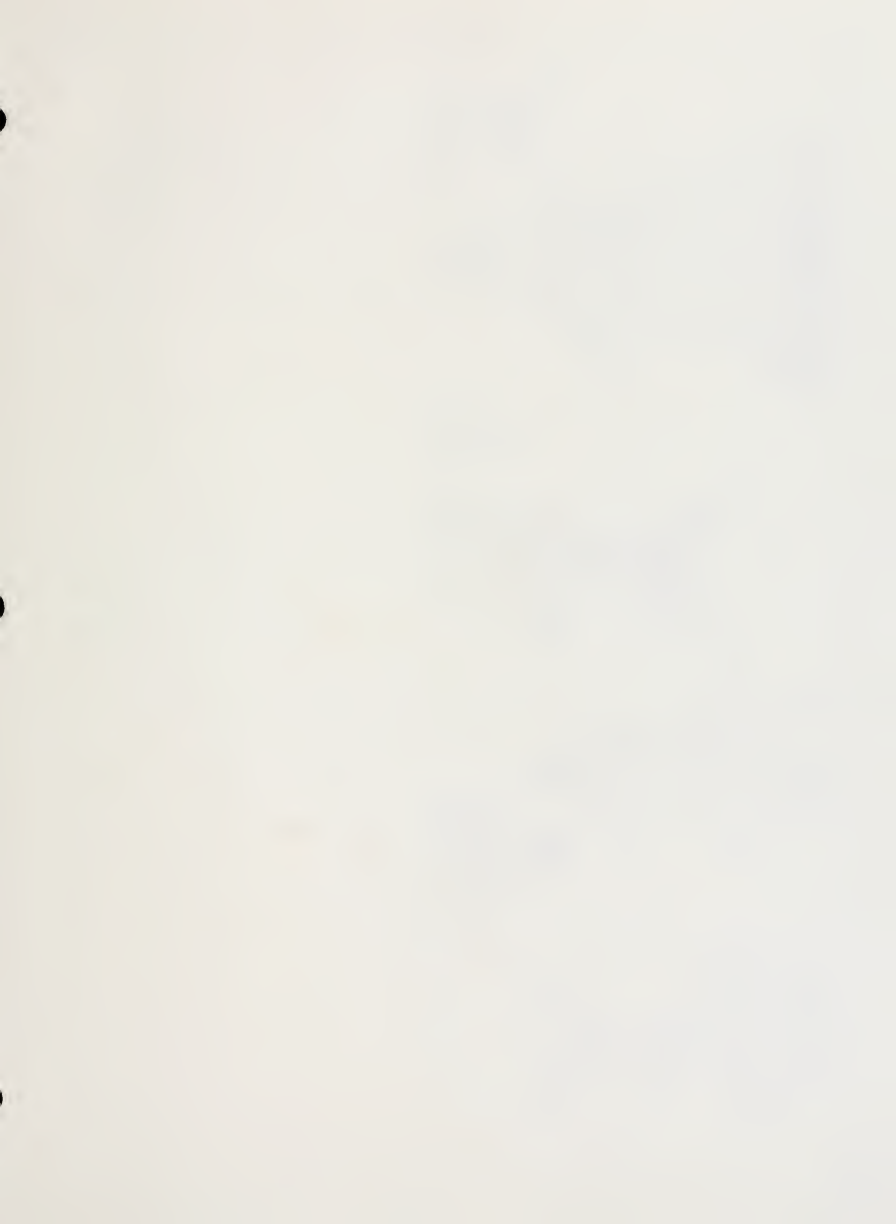
WINIFRED OUTDOOR EDUCATION PROGRAM

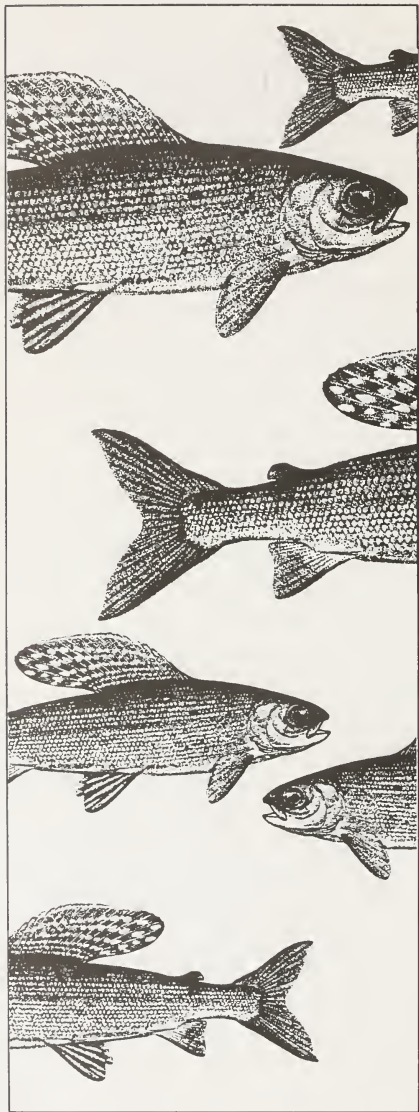
The Winifred Outdoor Education Program takes place during spring semester for high school students enrolled in third-year biology that have met certain academic requirements. The program includes academic research and after-school recreational activities in the local area, and is culminated with a four-day, 60-mile float on Montana's Smith River. The recreational aspects entice students to enroll in this optional science class, while the program itself provides opportunity for hands-on field research and collection of original data. Students specialize in various subject areas and design their own research project. Numerous data-gathering field trips, both personal and school-sponsored, are conducted throughout the spring, culminating with the Smith River trip. The last few weeks of the course are spent analyzing data and writing up research findings in technical form in preparation for presentation at one or more scientific seminars. The program was initiated in 1980. Students, teachers, parents, and administrators feel they have the state's most exciting and successful program.

Contact: Ralph Rogers
Winifred Public Schools
Winifred, Montana 59489

(406) 462-5420







CURRICULUM RESOURCES

The purpose of this chapter is to assist educators in designing a conservation education curriculum. There are four sections of material: information sources, audiovisual sources, activity resources, and field trip ideas. Most of the information listings are of Montana or regional origin. Most of the audiovisual materials are free of charge, except for return postage. The activity resources are in keeping with our hands-on approach to teaching conservation principles. Lastly, field trip ideas are many for a state as large and diverse as Montana.

INFORMATION SOURCES

Sources of printed information are presented in alphabetical order in this section.

Agricultural Education Two-Year Core Curriculum

The Montana Two-Year Core Curriculum has been developed to help teachers of vocational agriculture prepare both short- and long-range curriculum goals. The curriculum is appropriate for students of both agribusiness and production agriculture. The curriculum includes the following areas: leadership development, careers, agricultural mechanics, animal science, and plant science.

Contact: Leonard Lombardi, Agriculture Education Specialist
Montana Office of Public Instruction
1300 South Eleventh Avenue
Helena, Montana 59620-2301

(406) 444-4451

Biologue Newsletter

Biologue is a natural science journal published three times a year--spring, fall and winter--by the Teton Science School. Each 16-page issue covers a single topic in the life sciences. Both readable and informative, Biologue is an excellent resource for educators, students and others who are interested in learning more about the natural world. Annual subscriptions are \$7.50 (bulk rate).

Contact: Teton Science School
P.O. Box 68
Kelly, Wyoming 83011

(307) 733-4765

Clearing Newsletter

Clearing is a newsletter that contains a collection of ideas, activities, and resources useful to classroom teachers, nature center instructors, and youth group leaders teaching about the environment in the Pacific Northwest. Issues describe specific activities, contain listings of environmental education curriculum resources, and include articles on our global environment. Clearing is a publication of the Environmental Education Project at Portland State University, and is published five times during the school year. Subscriptions cost \$10.00 per year.

Contact: Environmental Education Project
Portland State University
P.O. Box 751
Portland, Oregon 97207

(503) 464-4721

Energy Education Resources

Montana Energy Resource Guide

This directory of energy education resources has been prepared to help teachers, librarians, and citizens locate energy information. It describes agencies and organizations involved in energy education and the speakers, films, displays, and publications that they offer. This 1984 resource guide is available free.

Energy Resources and Facilities of Montana

This 1986 wall-sized map identifies the locations of Montana's energy resources, processing facilities, and transmission lines.

Energy Conservation for Children Curriculum

The Energy Conservation for Children Curriculum is designed for elementary teachers of grades one through six. Materials include guidebooks for each grade that offer exercises combining basic skill practice in the areas of language arts, math, social studies, and science with a conservation concept. The booklet, Energy Tech-Knowledge, contains ten sample worksheets from each of the six grade-level guidebooks. (See Energy Conservation for Children Teacher Training Workshop described earlier.)

Montana Energy Challenge: Monitoring School Energy Consumption

During the 1987-88 school year the Department of Natural Resources and Conservation conducted the Montana Energy Challenge. The program combined instruction in energy matters with an energy-saving competition between participating schools. Classroom work featured the use of the Conservation for Children curriculum. Student energy teams were established to help monitor school energy consumption. Students had the opportunity to learn first-hand how changes in energy habits and building operation can save energy. Schools with winning student energy teams received \$850, \$650, and \$500, respectively, for first, second, and third place.

Energy Education Minigrants

The Department of Natural Resources and Conservation has sponsored an energy education minigrant program for Montana schools. Energy education grants, each up to a maximum of \$500, are awarded competitively to educators wishing to undertake an energy-related project. A booklet describing the nine 1988 winners is available. Seven projects will be funded during the 1988-89 school year.

For all Energy Education Resources listed above, contact:

Cory Plantenberg
Energy Division
Montana Department of Natural Resources and
Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6697

Energy Project Series: Leader and Project Planning Guide

The planning guide provides an overview of the three levels and 75 self-guided activities comprising the 4-H Energy Project. The Energy Project is designed to help Montana youth ages 8 to 19 years explore four major areas of energy:

1. Energy resources of Montana
2. Energy conservation in the home and community
3. Renewable sources of energy for Montana
4. Energy used in agriculture and Montana industries

The three levels of the project are:

- | | |
|--|--------------------------------------|
| 1. Energy Voyager
(Bulletin 1341, July 1986) | Introductory level,
ages 8 to 11 |
| 2. Energy Explorer
(Bulletin 1339, July 1986) | Intermediate level,
ages 12 to 14 |
| 3. Energy Challenger
(BULLETIN 1340, July 1986) | Advanced level,
ages 15 to 19 |

Contact: Montana Cooperative Extension Service
Montana State University
Bozeman, Montana 59717

(406) 994-3501

Glacier National Park Environmental Study Area Activity Booklet

The booklet contains a collection of activities that will assist teachers in developing an environmental awareness in their students. The activities are designed for individual student discovery and decision making. Developed for fifth and sixth grade use, activities may be adapted for any grade level. They are written so that leaders with no prior experience or training can successfully lead students through

a meaningful educational experience. While the booklet is designed for use at any of Glacier National Park's four environmental study areas, it may be easily adapted to any site.

Contact: District Interpreter
West Lakes Office
Glacier National Park
West Glacier, Montana 59936

(406) 888-5441, extension 50

Glacier Natural History Association Catalog of Publications

Publication categories include animals, birds, plants, trees, flowers, Native Americans, geology, history, and more. Some books are intended specifically for Glacier National Park, while others are more general in nature. An order form is included with the catalog.

Contact: Glacier Natural History Association
Glacier National Park
West Glacier, Montana 59936

(406) 888-5441

Lee Metcalf Wildlife Refuge Resource Library

The Lee Metcalf Wildlife Refuge offers a resource library that is available to all teachers in the area during the school year at the Stevensville Elementary School. The library contains reference material and outdoor and classroom activity lesson plans that approach environmental education from a variety of subject areas and are tailored to grade levels K-6.

Contact: Librarian
Stevensville Elementary School
South Park Street
Stevensville, Montana 59870

(406) 777-5822

Magnificent Journey, The

The awe-inspiring story describes the annual run of Northwest salmon from the Pacific Ocean to the mountain streams where their lives began. For copies of this 1986 publication or more information on the fish and wildlife

activities of the Bonneville Power Administration (BPA), contact the address below.

Contact: Bonneville Power Administration
Division of Fish and Wildlife
P.O. Box 3621
Portland, Oregon 97208

(800) 547-6048
(406) 329-3060 (BPA's Montana office in Missoula)

Montana Outdoors Magazine

The Montana Outdoors magazine is published bimonthly by the Montana Department of Fish, Wildlife, and Parks. Magazine articles cover wildlife and fish ecology and management, as well as natural resource issues of statewide concern. An annual subscription costs \$7.00.

Contact: Montana Outdoors Magazine
930 Custer Avenue West
Helena, Montana 59620-2301

(406) 444-2474

Montana's Natural Resources Series

The series includes seven booklets on Montana's varied natural resources: minerals, grasslands, forests, water, soils, wildlife, and wilderness. Each booklet gives a general background on the resource and explores its historical importance and present value. Maps, schematic drawings, photos, and sketches add interest and information. Reading lists and suggested activities make this set of booklets a useful teaching tool. These publications are appropriate for junior and senior high school students. There is a charge of \$4.25 for the complete series.

Contact: Department of Natural Resources and Conservation
Publications Bureau
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6741

Natural Resources in Montana's History

Designed for upper elementary students, this 32-page booklet gives young readers a thoughtful look at the way

natural resources have shaped Montana's history and why they are still a powerful influence today. Drawings, maps, and historical photos add interest. Reading lists, activities, and a vocabulary are included. There is a charge of \$1.50 (including postage) for a single copy.

Contact: Department of Natural Resources and Conservation
Publications Bureau
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6741

Raptor Room News

The Raptor Room News is a bimonthly newsletter of the Grounded Eagle Foundation, a nonprofit organization devoted to wildlife rehabilitation, preservation, conservation, and education. The foundation operates the Raptor Room, a wildlife rehabilitation facility in the Swan Valley that is discussed in the section called "Field Trip Ideas."

The News contains articles on wildlife, environmental education, and happenings at the Raptor Room. The publication is distributed free to all Montana schools, concerned state and federal agencies, colleges, universities, and organizations. Additional copies are available at a reasonable cost.

Contact: The Raptor Room News
Grounded Eagle Foundation
Star Route 900
Seeley Lake, Montana 59868

(406) 754-2880
(800) 541-7986

Salmon/Eagle Migration at Glacier National Park--A Teacher's Guide

This guide provides information on salmon and eagle natural history and ecology, related classroom activities, and how to plan a visit to the park to view the salmon and eagles.

Contact: District Interpreter
West Lakes Office
Glacier National Park
West Glacier, Montana 59936

(406) 888-5441, extension 50

Soil Conservation Society of America Cartoon Booklets

The Soil Conservation Society of America's (SCSA) cartoon booklets help elementary grade students comprehend the importance of natural resources and learn how people affect the use of those resources. Teacher's guides present a variety of activities requiring little preparation time and which can easily be conducted in the classroom. The cartoon booklets cover a wide variety of topics including land management, plants, water, soils, wildlife, conservation districts and more. Single copies are twenty-five cents; bulk prices are available. Contact the Montana SCSA Chapter president to inquire about local subsidies for school orders.

Contact: Soil Conservation Society of America
7515 N.E. Ankeny Road
Ankeny, Iowa 50021

(515) 289-2331

Don Anderson, Montana Chapter President
SCSA
5115 Highway 93 South
Missoula, Montana 59801

(406) 329-3247

U.S. Bureau of Reclamation Poster

A 5' X 4' poster illustrating water resource use and management is available free.

Contact: Rod Ottenbright, Public Affairs Officer
U.S. Bureau of Reclamation
316 North 26th
Billings, Montana

(406) 657-6214

U.S. Forest Service Curriculum Materials

Each Forest Service Ranger District has a limited supply of free educational materials available upon request. The selection of materials varies annually and from district to district. You may request a Forest Fire Prevention and Conservation Teacher's Kit, Junior Forest Ranger Handbook for students, colorful natural history posters, Woodsy Owl Environmental Education Leader's Kit, or a special teacher's packet. Contact the district nearest you, or the Forest

Service Regional Office in Missoula, to request curriculum materials.

Contact: U.S. Forest Service
Region 1
Box 7669
Missoula, Montana 59801

(406) 329-3096

U.S. Government Documents

More than 15,000 different books, pamphlets, posters, periodicals, subscription services, and other government publications are available. Topics touch on nearly every facet of human life. More than 230 "Subject Bibliographies" (SBs) have been prepared for most subject categories and are available free of charge. Subject Bibliographies exist on environmental education, forest management, water pollution and water resources, and much more. A Subject Bibliography Index has been prepared to assist in identifying the particular SB that contains publications related to the desired subject. All publication orders must be prepaid.

Contact: U.S. Superintendent of Documents
Government Printing Office
Washington, D.C. 20402-9325

(202) 783-3238

Water Education and Technology (WET) Program

WET is a Cooperative Extension/Water Research Center program to improve educational opportunities regarding water. The program assists teachers, county agents, interest groups, and others in designing water education programs, locating resource materials, and identifying speakers. Publications available include:

1. "River of the Northern Plains" (slide-tape)
2. National Water Issues (bulletin)
3. Instream Reservations of Water (bulletin)
4. Who Does What With Water in Montana (directory)

Contact: Vern House
Cooperative Extension Service
Montana State University
Bozeman, Montana 59717

(406) 994-6647

Wild in the City--Missoula

"Wild in the City" is a publication describing natural sites located within the Missoula city limits for which site-specific lesson plans have been developed. The lesson plans specify: age levels, best season to visit, and suggested activities, as well as site maps. These lesson plans are available to all Missoula area teachers (and others, upon request) to facilitate the teaching of environmental awareness skills, resource management, and problem solving.

A collection of wilderness management exercises and activities for fifth grade students, as well as an extensive library of environmental education materials, are also available at the Wilderness Institute.

Contact: Kari Gunderson
Wilderness Institute
School of Forestry
University of Montana
Missoula, Montana 59812

(406) 243-5361

AUDIOVISUAL SOURCES

Movies, videotapes, film strips, and slide shows on a wide variety of natural resource topics are described in this section. The sources and materials are presented in alphabetical order.

Department of Fish, Wildlife and Parks (DFWP) Audiovisual Materials

An excellent collection of color and black and white 16-mm films, videotapes, film strips, and slide shows is maintained by DFWP's Helena office. Subject areas include water, wetlands, wildlife, fisheries, birds, and hunting. Films are available free of charge for a one-day showing period, due to the tremendous demand for them. Film libraries are also maintained by seven regional offices: Kalispell, Missoula, Bozeman, Great Falls, Billings, Glasgow, and Miles City. A 1987-88 film catalog may be requested.

Contact: Department of Fish, Wildlife and Parks
930 Custer Avenue
Helena, Montana 59620-2301

(406) 444-2426

Energy Films and Videotapes

The Energy Division of the Montana Department of Natural Resources and Conservation has prepared a brochure describing the content, audience level, film length, and producer of a number of color 16 mm films and videotapes (VHS) on energy conservation and renewable energy resources. The films and videotapes are available through your local public library. The brochure can be obtained by writing to the Energy Division.

Contact: Energy Division
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6697

International Wildlife Film Festival

Award-winning wildlife films from all over the world are available for loan. The week-long Film Festival takes place each spring at the University of Montana. Classes may view the highest-ranking competing films or borrow the winners throughout the following year.

Contact: Chuck Jonkel
Environmental Studies Program
University of Montana
Missoula, Montana 59812

(406) 243-6273

Office of Public Instruction (OPI) Audiovisual Library

The OPI audiovisual library maintains a collection of over 4,500 videotapes, 16-mm films, and videodiscs, all of which are available on a rental fee basis. Subject categories include nature study and science.

Contact: Audiovisual Library
Office of Public Instruction
1300 Eleventh Avenue
Helena, Montana 59620-2301

(406) 442-3170

U.S. Forest Service Audiovisual Materials

The U.S. Forest Service audiovisual materials are housed at the Instructional Materials Service center at the University of Montana. These materials include 16-mm films, slide-tape programs, and videotape programs on a wide variety of natural resource topics including environmental education, fire, recreation, water, timber, wildlife, and fisheries management. A catalog describing each film is available in every school library in the state. These materials are available free; borrowers must pay return transportation costs.

Contact: Instructional Materials Service
USDA-USFS Film Library
University of Montana
Missoula, Montana 59812

(406) 243-5976 or (406) 243-4070

Yellowstone Film Library

Yellowstone National Park's collection of wildlife, history, and geology movies is available on a subscription basis. Schools pay \$50 for one year of film loans.

Contact: Film Librarian
National Park Service
P.O. Box 168
Yellowstone National Park, Wyoming 82190

(307) 344-7381, extension 2255

ACTIVITY RESOURCES

Guidebooks and other resources describing both classroom and outdoor activities are covered in this section. The resources are listed in alphabetical order.

Aquatic Education Activity Guide

The Aquatic Education Activity Guide is a supplement to Project Wild, Project Learning Tree, and other outdoor and environmental programs. The guide can be easily integrated into school subject areas--especially science, social studies, mathematics, language arts, and art--so that classroom teachers can use the materials to teach required concepts and skills while at the same time teaching about water resources and the environment. This guide is available free of charge

to teachers who attend a Project Wild workshop (described earlier in the "Training Programs for Educators" chapter).

Contact:

Bob Briggs
Science Specialist
Office of Public Instruction
State Capitol
Helena, Montana 59620-2301

(406) 444-4439

Vince Yannone
Youth Education Specialist
Department of Fish, Wildlife
and Parks
1420 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-3088

The Class Project--National Wildlife Federation

The Class Project materials are designed to enhance middle school science and social studies curricula. CLASS means Conservation Learning Activities in Science and Social Studies. The investigations are centered around six content areas: energy use, environmental issues, forest watershed management, hazardous substances, wetlands, and wildlife habitat. These materials include background information, illustrations, student worksheets, teacher transparency worksheets, and color posters. The materials are presently in use by over 3,500 teachers in 34 states. This project was initiated in 1982. A very complete thinking skills supplement is in production.

Contact: Director of School Programs
National Wildlife Federation
1412 16th Street, N.W.
Washington, D.C. 20036-2266

(703) 790-4279

Endangered Species Kit

An endangered species education program is being developed to promote a better understanding, appreciation, and awareness of threatened and endangered species in Montana among students K-12. Montana's threatened and endangered species include grizzly bear, gray wolf, bald eagle, black-footed ferret, whooping crane, peregrine falcon, piping plover, and least tern.

A shipping container will house skulls, skins, feathers, and body parts of Montana threatened and endangered species. An application has been made to the U.S. Fish and Wildlife Service for the necessary permits for possession and

educational use of such materials. The kit will contain educational materials on each animal, detailing important aspects of their natural history. Lesson plans, activities, and posters are included.

The kit can be checked out to schools for a two-week period including time for shipping to and from the school site. Schools will be expected to pay shipping costs. The trunk will be available in the fall of 1989.

Contact: Endangered Species Kit
c/o Wilderness Institute
School of Forestry
University of Montana
Missoula, Montana 59812

(406) 243-5361

Expedition Yellowstone!

Expedition Yellowstone! is a collection of curriculum materials to acquaint upper elementary students with Yellowstone National Park. Both classroom and outdoor activities are described that can be conducted locally or in the park. Classes have the option of visiting the park with the assistance and supervision of a Yellowstone Park ranger. (See the section called "Field Trip Ideas" for more information.) The Expedition Yellowstone! materials include a storybook (Expedition Yellowstone! A Mountain Adventure), and a very extensive teacher workbook. The activities can be incorporated into many subject areas as the students learn about the park environment and natural resources.

Contact: Jack de Golia
Program Coordinator
Expedition: Yellowstone!
Yellowstone National Park, Wyoming 82190

(307) 344-7381, extension 2339

Get Your Hands On Energy--Alternative Energy Resources Organization

The Get Your Hands On Energy publication is a course in perception, exploration, creativity, and problem solving for students in kindergarten through sixth grade. It is a collection of activities emphasizing the "hands on" approach to teaching skills and concepts about energy management and use, together with the important message of "I can act." The book is organized to follow the processes of learning and

thinking rather than merely to convey information about energy and the environment.

Contact: Alternative Energy Resources Organization
44 North Last Chance Gulch
Helena, Montana 59601

(406) 443-7272

Planetarium Education Project (PEP)

This project was initiated to provide astronomy curriculum materials for Montana's K-6 teachers. Many elementary students have a natural fascination about what is happening in the sky. This activity guide takes advantage of this curiosity to teach some of the basic concepts in the physical sciences in an interesting way. The activities are designed to use without a planetarium, but a portable, inflatable planetarium (see "STARLAB Portable Planetarium" later in this part) is available to assist teachers in the presentation of some of the activity materials. The activities have been designed to provide the observational background and concrete experiences that allow students to grasp the more abstract models that scientists use to explain phenomena. Cost of the guide is about \$7.00.

Contact: Larry Kirkpatrick
Physics Department
Montana State University
Bozeman, Montana 59717

(406) 994-6182

Planting in the Dust--Alternative Energy Resources Organization

Planting in the Dust, a one-act play sponsored by the Alternative Energy Resources Organization (AERO), sensitively portrays the changing approach to agricultural land management in this century. The play inspires many questions and provides a jumping-off point for discussions of land stewardship and sustainable resource management. The cost of the play is \$420, plus mileage, for a single showing. Additional shows in the same town are \$120 each. Subsidies are available through AERO; ask for Al Kurki.

Contact: Alternative Energy Resources Organization
44 North Last Chance Gulch
Helena, Montana 59601

(406) 443-7272

Project Learning Tree--Elementary and Secondary Guides

Project Learning Tree (PLT) uses the forest and related resources as the context for learning about natural resource conservation. PLT activities require students to explore situations, problems, and issues, and arrive at appropriate conclusions and positions. Each guide contains 80 or more environmental activities keyed by grade level, subject, and content. This project has been used successfully with hundreds of thousands of students from across the country.

Contact: Spencer Sartorius
Physical Education Specialist
Office of Public Instruction
State Capitol
Helena, Montana 59620-2301

(406) 444-4434

Project Wild--Elementary and Secondary Guides

Project Wild, developed by the Western Regional Environmental Education Council, is an interdisciplinary conservation education program emphasizing wildlife. Project Wild prepares young people for decisions affecting wildlife, humankind, and their shared home, earth. The program will assist learners in developing the awareness, knowledge, skills, and commitment resulting in informed decisions, responsible behavior, and constructive actions. A "hands-on" approach is used to teach students about their world and the ways in which their actions will determine the future of wildlife, natural resources, the environment, and, ultimately, the quality of life on earth. The guidebook is free to educators participating in a Project Wild workshop.

Contact: Vince Yannone
Youth Education Specialist
Department of Fish, Wildlife and Parks
1420 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-3088

Resource Education Awareness Project (REAP)

The REAP curriculum was conceived by the Missoula County Conservation District and the Montana Energy Education Council. It was jointly funded by the Montana Department of Natural Resources and Conservation and the Montana Department of Agriculture's Noxious Weed Trust Fund. Middle school students are exposed to ecosystem and weed educational materials that include "Natural Heritage," "Introduction to Weeds," "Impact of Weeds," "Weed Control," and "Land Ethic."

Contact: Missoula County Conservation District
5115 Highway 93 South
Missoula, Montana 59801

(406) 329-3684

Jenny Younger
5555 Black Bear Road
Bozeman, Montana 59715

(406) 587-2390

Simulator Programs--Montana State University

Montana State University has developed several electronic modeling devices that allow students to simulate the management of specific resources under varying conditions. The simulators available include Water Resources Management, Energy Environments, Grazing Land Management, Power Grid Management, and Home Energy Conservation. The simulators can be used by groups of varying size and include curriculum guides to assist educators.

Contact: John Amend
Chemistry Department
Montana State University
Bozeman, Montana 59717

(406) 994-5379

STARLAB Portable Planetarium

STARLAB is an inflatable dome that accommodates about 24 persons. It is shipped in three small cases that weigh a total of 80 pounds. The planetarium is supported by air from an ordinary window fan. It has no floor, and access to its interior is through a fabric tunnel. Within the STARLAB is a star projector, slide projector, and stereo sound system. The entire planetarium can be set up in about 30 minutes by

two persons. The STARLAB inflatable planetarium is a perfect accompaniment to the "Planetarium Education Project" (described earlier in this part) or any lesson on astronomy, navigation, or Native American and Greek mythology. The planetarium should be scheduled three months in advance. It costs \$35 for the first day and \$25 for each subsequent day.

Contact: David Swingle, Education Director
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

U.S. Forest Service Learning Investigations

The U.S. Forest Service has developed a series of lesson plan activities to facilitate investigating one's environment. The lesson plans provide an excellent introduction to and understanding of soils, water, forests, and wildlife, and they expose students to a problem-solving approach to resource management. Instructions for a land use simulation game are given. The lesson plans are written for teachers with students in the upper elementary grades or for adults.

Contact: Your nearest U.S. Forest Service Ranger District, or

Steve Sherrick
U.S. Forest Service
Region I
Box 7669
Missoula, Montana 59801

(406) 329-3096

FIELD TRIP IDEAS

Ideas for over a dozen different kinds of field trips are presented in this part. The trips are listed alphabetically by sponsor, site, or title.

Agricultural Experiment Stations

The Montana Agricultural Experiment Station system includes nine experiment stations in the following locations: Corvallis, Bozeman, Kalispell, Conrad, Havre, Moccasin, Sidney, Miles City, and Huntley. The research at each station is designed to meet needs of local producers. Each station hosts a field day on an annual or biennial basis to provide visitors a firsthand look at the progress of various research projects. Tours at other times should be prearranged.

Contact: Agricultural Experiment Station
Montana State University
Bozeman, Montana 59717

(406) 994-3681

Big Creek Outdoor Education Center

In 1988, the Glacier Institute signed a special use permit with the Flathead National Forest for the use of facilities at the former Big Creek Ranger Station located on the western boundary of Glacier National Park, 20 miles north of Columbia Falls on the North Fork of the Flathead River. The Big Creek Outdoor Education Center offers the following programs:

1. Multi-day residential experience for fifth and sixth grade students (Other age groups can be accommodated also.)
2. One-two week summer programs for elementary students, junior high and high school students, gifted and talented students, special needs groups, and adult and senior citizen groups
3. Single day use for any group
4. Teacher training classes in science, curriculum development, environmental education, and use of the outdoors as an extension of the classroom

5. Facilities for meetings and conferences concerned with educational issues, resource management issues, and other related topics

A resident director/teacher is available to help plan and facilitate visits. Pre-, on-site, and post-visit activity packets may be requested to meet participants' individual needs. Topics that may be studied at the center include: stream and pond environments, plant communities, resource management, wildlife, weather, map and compass, astronomy, and geology. Costs vary depending upon length of stay, use of facilities and staff, and whether food is provided.

Contact: Susie Bouton, Director
Big Creek Outdoor Education Center
6500 North Fork Road
Columbia Falls, Montana 59912

(406) 755-6078, extension 333

Big Sky Girl Scout Council Facilities

Both the Big Sky Girl Scout Council in Great Falls and the Treasure Trails Girl Scout Council in Billings have several camps available for rental use by school groups and others. In the south-central part of the state, camps are located near Red Lodge (Timbercrest Camp) and Livingston (Livingston Lodge). In the western part of the state, camps are located near Whitefish, Helena, Butte, Anaconda, and Hamilton (spring and fall only). The respective council offices can provide information on the cost, carrying capacity, and available facilities at each location.

Contact:

Caryl Mallory, Field Director
Big Sky Girl Scout Council
4930 Ninth Avenue South
P.O. Box 7128
Great Falls, Montana 59406

(406) 453-2477

Eileen Morris, Field Director
Treasure Trails G. S. Council
1015 Broadwater
Billings, Montana 59102

(406) 259-2158

Dams and Reservoirs--Private, State, and Federal

Private, state, and federal entities are responsible for the construction and operation of dams and reservoirs in Montana. These projects provide a variety of benefits that include irrigation water, hydroelectric power generation, water quality improvement, flood control, fish and wildlife

enhancement, and outdoor recreation. Information and interpretive services for specific dams and reservoirs located in Montana can be obtained by contacting the following offices.

Contact: U.S. Bureau of Reclamation
Upper Missouri Region
Public Affairs Officer
Water and Power Resources Service
Department of the Interior
P.O. Box 2553
Billings, Montana 59103

(406) 657-6218

Ft. Peck Dam
Park Manager
P.O. Box 208
Fort Peck, Montana 59223

(406) 526-3411

Libby Dam
Park Manager
Star Route #2, P.O. Box 214
Libby, Montana 59923-9703

(406) 293-7751

Department of Natural Resources and Conservation
Water Resources Division-- Engineering Bureau
1520 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-6646

Montana Power Company
Consumer of Educational Services
40 East Broadway
Butte, Montana 59701

(406) 723-5421, extension 2253

Expedition Yellowstone!

Expedition Yellowstone! is both a residential environmental education program and a curriculum about Yellowstone National Park. The curriculum consists of a storybook and a teacher's workbook, aimed at the fourth-sixth grades. Teachers may use the materials to teach a unit about Yellowstone or teach other basic subjects using Yellowstone.

Teachers who want to combine classroom work and a several-day trip to the park may register to do so using a coupon found in the teacher's workbook. Registered teachers participate in a lottery twice a year. The lottery for the spring season is held in October; the lottery for the fall is held in March. Only registered teachers participate in the lottery. Dates are assigned as each name is drawn in the lottery.

Prior to the trip, park rangers and the teacher work out an itinerary. Teachers choose the educational goals they want to achieve and the activities they want to do from Expedition Yellowstone!, Project Wild, and other sources. The ranger then suggests hikes where the activities can be done and concepts best illustrated. The emphasis is on foot travel to little-visited areas of Yellowstone, not a motor tour of the park roads. A park ranger-naturalist accompanies each group during its entire stay.

Groups stay at the Lamar Buffalo Ranch, in northeastern Yellowstone. Rustic cabins keep the rain and snow off. They have bed frames and mattresses, but campers need sleeping bags. A heated lodge building serves as show area, kitchen, dining room, indoor classroom, and movie theater. The maximum group size (including at least one adult per five children) is 39.

Groups may stay anywhere from just overnight to four nights and five days. The only charge for the experience is a one-time purchase fee for the curriculum materials. Groups are responsible for their own transportation, food, and meal preparation.

Contact: Jack de Golia, Program Coordinator
Expedition Yellowstone!
National Park Service
P.O. Box 168
Yellowstone National Park, Wyoming 82190

(307) 344-7381, extension 2339

Fish Hatcheries

All state and federal fish hatcheries in Montana are open seven days a week for public viewing, with the exception of the research station at Bozeman (see list below). Organized guided tours are available at all locations, with advance notification required. Interpretive materials are also available. Call the hatchery to find out the best time to see spawning and brood activity. Fish hatcheries can provide an

excellent opportunity for students to gain hands-on experience in aquatic resource management.

All state hatcheries will make live and dead fish available to schools for scientific purposes. The school principal must send a written request to the hatchery and assure that the fish will be disposed of properly and not released into the wild. Students may also request permission to monitor fish growth, food conversions, or other conditions at the hatchery.

State Fish Hatcheries in Montana

Visitor Information: Hours are 8 A.M. to 5 P.M. seven days a week. Hatchery tours may be available on request. Various stages of fish life cycle development can be viewed--call hatchery for specific information. Interpretive information is available.

Murray Springs
Jim Schrieber
Route 1, Box 96-2
Eureka, Montana 59917

Species: Westslope & Yellowstone
cutthroat and Kamalooop
rainbow trout

(406) 889-3489

Flathead Lake
Stewart Kienow
Somers, Montana 59932

Species: Kokanee salmon

(406) 857-3744

Jocko River
James Crepeau
Route 1, Box 4610
Arlee, Montana 59821

Species: Arlee rainbow trout

(406) 726-3344

Washoe Park
Mark Hamilton
606 West Penn
Anaconda, Montana 59711

Species: Westslope cutthroat trout

(406) 563-2531

Creston
Bob Thompson
Creston Hatchery Road
Kalispell, Montana 59901

Species: Westslope cutthroat,
rainbow, brown, and lake
trout

(406) 755-9311

Fish Cultural
Development Center
Charlie Smith
4050 Bridger Canyon Road
Bozeman, Montana 59715

Species: Various

(406) 587-9265

LEE METCALF NATIONAL WILDLIFE REFUGE: Study Area And Learning Center

Lee Metcalf National Wildlife Refuge, consisting of 2,800 acres of ponds, sloughs, meadows, and river-bottom woodland, is home to deer, coyote, beaver, muskrat, otter, osprey, eagles, cormorants, swans, ducks, geese, and many other birds and mammals. With its diversity of flora and fauna, the refuge is an ideal site for introducing children to experiences that promote a deeper understanding of ecological relationships. To encourage these experiences, the Lee Metcalf Wildlife Refuge invites teachers and students to use the refuge as an environmental study area. Two nature trails provide access to the river-bottom woodland, ponds, and sloughs which contain a variety of plants and animals.

A Learning Center is located in the White Barn and houses a skull/skin collection, collecting pans, nets, magnifying lens, marker board, tables, and a projector and screen. If pre-arranged, this center may be made available to school groups during visits to the refuge.

Contact: Lee Metcalf National Wildlife Refuge
P.O. Box 257
Stevensville, Montana 59870

(406) 777-5552

Montana State Parks

A Montana State Parks Directory is available from the Montana Department of Fish, Wildlife and Parks in Helena or from any of the department's regional offices listed below.

The directory includes a short description of each of the 60 state parks and a summary of the available facilities.

Contact: Department of Fish, Wildlife and Parks
1420 East Sixth Avenue
Helena, Montana 59620-2301

(406) 444-2535

DFWP Regional Officers

Region 1	Kalispell	Mike Aderhold	752-5501
Region 2	Missoula	Bill Thomas	542-5500
Region 3	Bozeman	Don Bianchi	994-6931
Region 4	Great Falls	Harley Yeager	454-3441
Region 5	Billings	Bill Pryor	252-4654
Region 6	Glasgow	Jim Liebelt	228-9347
Region 7	Miles City	Ken Walcheck	232-4365

Museum of the Rockies Visits by Schools

School groups may visit the museum for a full-day to a full-week academic program. Visits are jointly planned by the participating school and museum instructors to correspond closely with and reinforce ongoing curriculum. The museum program may contain the following topics and disciplines: astronomy, geology, paleontology, archeology, ethnology, Native Americans, fur trade era, military history of the Rockies, mining history, homestead history (a complete 1886 working farm is planned by 1990), Great Depression, and arts and crafts from around the world. This program is available year-round from 9 A.M. to 4 P.M., for ages kindergarten to adult. There is a \$2 charge per student; teachers and chaperones are free.

Contact: David Swingle, Director of Education
Museum of the Rockies
Montana State University
Bozeman, Montana 59717

(406) 994-5257

National Bison Range

The National Bison Range, one of the oldest big-game areas in the country, is located in western Montana at the southern end of the Flathead Valley. It protects one of the most important of the remaining herds of American bison or buffalo. Deer, elk, antelope, and moose are also relatively

common. The National Bison Range serves as an outdoor laboratory for research in the fields of wildlife and range management, and as a "classroom without walls" for teachers and students of all ages and grade levels.

Visits to the National Bison Range are open to any school in the state. The bison range will loan an introductory video program and have props available for teachers to use for outdoor education activities. Nature trails are available with good activity areas, in addition to auto/bus routes where students may view animals. All school groups must pre-schedule their visit to avoid crowding. Late spring, summer, and early fall are the best times to visit.

Contact: Marcy Bishop
National Bison Range
132 Bison Range Road
Moiese, Montana 59824

(406) 644-2211

National Forests

Montana is fortunate to have 10 national forests within its boundaries within reach of almost every classroom. The public affairs officer for each forest has access to large quantities of material useful to educators in a wide variety of subject areas; classroom speakers are also available on request. For assistance and information in planning a field trip, contact the nearest ranger district office or one of the public affairs officers listed below.

NATIONAL FOREST (NF) PUBLIC AFFAIRS OFFICERS

Beaverhead NF

Gerald Alcock
610 North Montana Street
P.O. Box 1258
Dillon, Montana 59725
683-3984

Bitterroot NF

Jo Ellen Barnier
316 North Third Street
Hamilton, Montana 59840
363-3131

Custer NF

LeRoy White
2602 First Avenue North
P.O. Box 2556
Billings, Montana 59103
657-6361

Deerlodge NF

Ron Hanson
Federal Building
P.O. Box 400
Butte, Montana 59703
496-3369

Flathead NF

John Denne
1935 Third Avenue East
P.O. Box 147
Kalispell, Montana 59901
755-5401

Gallatin NF

Robert Dennee
Federal Building
10 East Babcock Street
P.O. Box 130
Bozeman, Montana 59715
587-6744

Helena NF

Robert Krepps
Federal Building, Room 334
Drawer 10014
301 South Park
Helena, Montana 59626
449-5201

Kootenai NF

Jeannie Spooner
West Highway 2
P.O. Box AS
Libby, Montana 59923
293-6211

Lewis and Clark NF

Jane Schmoyer-Weber
1101 Fifteenth Street North
P.O. Box 871
Great Falls, Montana 59403
727-0901

Lolo NF

Marcia Hogan
Fort Missoula, Building 24
Missoula, Montana 59801
329-3832

U.S. Forest Service

Steve Sherrick
Region I Office
P.O. Box 7669
Missoula, Montana 59807
329-3096

Nature Conservancy's Pine Butte Swamp Preserve

Groups may request a naturalist-guided tour of the preserve, which features flatland grizzly habitat as well as several different habitat types. The best time to visit is spring or fall. Tours take one-half day and are free of charge. Overnight accommodations, including meals, are available at group rates for up to 20 persons in May or October. A classroom presentation may also be requested.

Contact: Cindi McAllister or Jenny Barhaugh
Nature Conservancy's Pine Butte Preserve
HC58, Box 34C
Choteau, Montana 59422

(406) 466-2377 or (406) 466-2158

Raptor Room--At Our Place Or Yours!

The Raptor Room, operated by the Grounded Eagle Foundation, is a wildlife rehabilitation facility located 22 miles north of Seeley Lake in the Swan Valley of western Montana. The room is open to schools for prearranged visits, or a special visit to your school can be arranged. A goal of the foundation for 1989 is to tour eastern Montana schools. Contact the Raptor Room if you would like your school to be visited as a part of the tour.

The foundation is a nonprofit organization devoted to wildlife rehabilitation, preservation, conservation, and education. Raptor Room News, a publication of the Grounded Eagle Foundation, provides information on foundation and room activities.

Contact: Raptor Room
Grounded Eagle Foundation, Inc.
Star Route 900
Seeley Lake, Montana 59868

(406) 754-2880

(800) 541-7986

Teton Science School Programs for School Groups

This program offers groups field natural history programs tailored to their specific interests and learning levels. These 5-10 day sessions are ideal for classes, science clubs, gifted programs and interim projects. Every season is a good season to visit Teton Science School because the Greater

Yellowstone Ecosystem offers unique opportunities for learning in every season, spring, summer, fall, and winter. A residential fee of \$40.00 per day is charged for meals, housing, instruction and transportation during the course. A five day minimum stay is required. Contact the Teton Science School for more information.

Contact: Teton Science School
P.O. Box 68
Kelly, Wyoming 83011

(307) 733-4765

U.S. Fish and Wildlife Service--Wildlife Refuges

The U.S. Fish and Wildlife Service operates several wildlife refuges throughout Montana. Visitors are welcome. Local schools may use the refuge as a base for environmental education activities such as plant, bird, and insect studies; photography is also common. To plan a visit, contact the refuge manager at the refuge of interest. Descriptions of some of the more popular refuges follow.

Benton Lake National Wildlife Refuge
P.O. Box 450
Black Eagle, Montana 59414

(406) 727-7400

A 12,383-acre migratory waterfowl area is located 12 miles north of Great Falls via U.S. Route 87. The refuge is operated primarily for nesting waterfowl, but it is also an important link in the migration route from Canadian and Alaskan breeding grounds to wintering areas in the south. Numbers are at a peak September to November. Spring populations are not quite as large, and in winter bird numbers are low because of the severe weather.

The spring courtship season and the summer nesting and young-rearing months are the most interesting times for the waterfowl enthusiast. Here is an opportunity to see literally hundreds of broods of nearly every species of duck, as well as the young of many other marsh waterfowl and shorebirds.

Bowdoin National Wildlife Refuge
P.O. Box J
Malta, Montana 59538

(406) 654-2863

Located 7 miles east of Malta in northeastern Montana, the refuge was established to preserve choice nesting, resting, and feeding habitat for migratory birds. Franklin's gulls, black-crowned night herons, and eared grebes nest in the extensive bulrush marshes of Lake Bowdoin, while American white pelicans, double-crested cormorants, great blue herons, and California and ring-billed gulls occupy its several islands. An auto tour with written guide has been developed.

Charles M. Russell National Wildlife Refuge
P.O. Box 110
Lewistown, Montana 59457

(406) 538-8706

This refuge is an extensive area associated with the Wild and Scenic Missouri River and the Fort Peck Reservoir. The refuge provides protection for endangered species, native wildlife, migratory birds, and their habitats. It also preserves cultural, archaeological, and paleontological resources and provides opportunities for wildlife and wildlands recreation.

Lee Metcalf National Wildlife Refuge (see earlier field trip entry on page 65)

Medicine Lake National Wildlife Refuge
HC51, Box 2
Medicine Lake, Montana 59427

(406) 789-2305

This refuge is situated in the transition zone between the tall grass prairies of North Dakota and the short grass prairies of central Montana. It lies within the highly productive prairie pothole region, which extends south from Canada. The refuge contains many thousands of small wetlands, producing over 50 percent of the waterfowl originating in the contiguous United States. The varied habitat, which includes marsh, native grasslands, and shrublands, provides nesting areas for a myriad of waterfowl, shorebirds, and small passerines. The refuge is also an important flyway migration stop for the "far North" nesters such as whooping cranes,

sandhill cranes, whistling swans, and toreal forest nesting warblers.

National Bison Range (see earlier field trip entry on page 66)

Red Rock Lakes National Wildlife Refuge
Box 15, Monida Star Route
Lima, Montana 59739

(406) 276-3347

This refuge lies in the eastern end of the Centennial Valley, 50 miles west of Yellowstone Park. It was established to protect the rare trumpeter swan. The refuge has a vast array of habitat, ranging from high elevation prairie at 6,600 feet to harsh alpine habitat at 10,000 feet, giving it a unique character. Campgrounds and interpretive areas have been developed.



MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION



**1520 EAST SIXTH AVENUE
HELENA, MONTANA 59620-2301**